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In this issue

Identifying Speech Disorders
NANCY E. WOOD

Choices by the Talented
EDITH S. GREER

MARCH 1963

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At the place of the jump

WE ARE FACED TODAY by new facts that call for new solutions to old problems. As I see the situation, national security and economic growth now change the need for a Federal program in education from a desirable domestic goal to a deadly serious necessity. We have waited too long; we are face to face with a problem that must be solved at once or our national future will be in jeopardy.

Under such circumstances, the house of education must not be divided. Educators are citizens, and in our tradition we should voluntarily and gladly subordinate our particular interests to the larger good. We must be prepared to sacrifice long-standing hopes as well as long-standing hostilities. We must face up to economic and political realities. If we as a society are to make the forward leap in education that the times demand, he who trips us as we come to the place of the jump must have the national well-being on his conscience.

. . . I am not so naive as to think that educators alone can create good legislation or have enough political power to pass it. That they cannot and have not—this is as it should be. The common good requires a broader view than any one profession can expect to have, and the ultimate judgment is in the wisdom of the people and their elected representatives. Yet in a democracy it is the privilege and the duty of the educator as a citizen to take a part in bringing about public understanding of the relation of education to the society it serves.

If the educators are either silent or divided in their counsel, in the face of the difficulties besetting any legislation on education, it is not reasonable to expect that the public will take the necessary action. Educators cannot pass good legislation, but by their action or inaction they can keep it from passing. Let it not be said of our generation that we failed in our public duty.—*U.S. Commissioner of Education Keppel, in an address at the annual meeting of the North Carolina Citizens Committee for Better Schools, Chapel Hill, March 8, 1963.*

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE • ANTHONY J. CELEBREZZE, *Secretary*
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Notes on the Notable

FEDERAL PROGRAMS AND ACTIVITIES

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Teams of educators demonstrate uses of media

TEAMS of educators across the country are all set to demonstrate the educational uses of films, television, and other audiovisual media of communication. They will bring their demonstration to any education institution within their regions whose requests can be fitted into their schedule—or to any institution or group of citizens. For more information see Dr. Spaulding's "Channels of Communication," page 18.

Schools appraise their health programs

THERE are many signs that educators are becoming more sensitive to the fact that a child's health or lack of it can make the difference between his success and failure in school, between his staying and dropping out.

Last month, for instance, the 12 largest cities in the United States—Baltimore, Chicago, Cleveland, Detroit, Houston, Los Angeles, Milwaukee, New York, Philadelphia, St. Louis, San Francisco, and Washington—sent representatives to a conference called by the Office of Education to study school health programs around the country. The conferees, who expressed enthusiasm for opportunities to exchange ideas, also approved the Office's plans for a study of health programs in the elementary schools of the cities represented; the study will be conducted in cooperation with the Public Health Service and the Children's Bureau.

Elsa Schneider, the Office's specialist for health, physical education, and recreation, who will be responsible for the study, says that the growing concern about the school child's health is worldwide. She cites both past and future international meetings on the subject: among them are the seminar in Manila in 1961 on child health and the school, sponsored by the World Health Organization and UNESCO; the all-African conference in Liberia in 1962 on health and physical education, sponsored by the World Confederation of Organizations of the Teaching Profession together with the International Council on Health, Physical Education, and Recreation, the National Teachers Association of Liberia, and the Liberian Depatrment of Public Instruction; and the WCOTP conference to be held this summer in Brazil, which also will emphasize health, physical education, and recreation.

Statistics for UNESCO

THE Studies and Surveys Branch of the Office of Education has compiled statistics on U.S. private and public education in response to a questionnaire sent to every government in the world from the United Nation's Educational, Scientific, and Cultural Organization (UNESCO). These statistics will be incorporated by UNESCO in its new edition of "World Survey of Education: Handbook of Educational Organizations and Statistics," which will probably come out next year. It is usually issued every third year.

The questionnaire asked for statistics on enrollments from nursery school to graduate school, number of teachers, number of high school graduates, number of earned degrees conferred, number of schools for exceptional children (how many children they enroll and how many teachers they employ), sources of school revenue, how revenue is spent, and the number of people in the school-age population, that is, between the ages of 5 and 24.

Statistics compiled by the Office are for the 50 States, the 6 outlying parts, and the District of Columbia.

The handbook is useful to UNESCO for planning purposes. It is also used by researchers and scholars in many parts of the world.

FFA, NFA, and the Peace Corps

The Future Farmers of America and the New Farmers of America have completed a contract with the Peace Corps to establish a project in West Pakistan. About 200 members or former members of the two organizations will go to West Pakistan to work for the improvement of agriculture, rural communities, and leadership among young people in agricultural areas. Volunteers will begin training in June or July and will go to West Pakistan in the fall. The Peace Corps will finance the project; the FFA and NFA, together with the Peace Corps, will administer it.

About 70 former members of the FFA and NFA are already serving with the Peace Corps.

Though the FFA and NFA are private organizations, they operate under congressional charter and have their national headquarters in the Agricultural Education Branch of the Office of Education.

Talent development project

THIS SPRING the Office of Education is sponsoring a national conference and cosponsoring a regional conference as part of its talent development project. (For details on this project, an office-wide effort to improve education for the talented, see the November–December issue of *School Life*.)

The national conference was held at the University of Pittsburgh, March 25–27, for directors of programs for the gifted in State departments of education.

Four topics dominated the Pittsburgh discussions:

1. The critical issues State department staffs must face in providing for the gifted: How much allowance should be made for deviant behavior in planning programs? How much standardization is desirable in school marks when evaluating and reporting on the student? Should the State require special certification for teachers? Should the State assume major responsibility for providing for the gifted in small schools? Should the State department evaluate local programs?

2. The resources available to State departments in their own States, from other States, and from the U.S. Office of Education.

3. The courses of action open to staff members.

4. A proposed program of action.

Four specialists from the Office of Education took part in the conference: J Ned Bryan, specialist for the gifted and talented, who served as chairman; Edith S. Greer, specialist for curriculum coordination; Wm. R. Carriker, research coordinator, cooperative research program; and Winslow R. Hatch, coordinator, clearinghouse of studies on higher education.

The Pittsburgh conference was a followup of the April 1962 conference held in the Office. State department specialists who have read the preliminary draft of the 1962 conference report, *Talent: A State's Resource, A State's Responsibility*, have commented favorably on it. In fact, the Texas Education Agency says that it has already influenced State legislation.

The regional conference, to be held at the University of Virginia, in Charlottesville in April, will be sponsored by the Office of Education in cooperation with the University of Virginia and the State departments of education in the States in HEW Region III (the District of Columbia, Kentucky, Maryland, North Carolina, Virginia, West Virginia, Puerto Rico, and the Virgin Islands). The conference will bring together representatives of various groups, including colleges and universities, State departments of education, professional organizations, lay associations like the PTA, and schools.

The unmarried mother needs help from her school

THE YOUNG unmarried mother desperately needs educational opportunities, yet in many States she is shut out of her school and deprived of all its services. In many States she is the only child exempted from the effect of compulsory education laws, which are generally intrepreted to mean that continued education must be provided for all children through grade 12.

Does this exclusion accomplish what society apparently wants—correction of the girl and protection of the other children? Jerry L. Kelley, assistant dean, School of Social Work, University of Washington, says it does not. Writing in the March–April issue of *Children* (published by the Children's Bureau), in an article entitled "The School and Unmarried Mothers," he says, "A far greater protection for the girl, the boy, and their schoolmates would be efforts on the part of the school system to help her and the rest of the students to reach a greater understanding of the world in which they are a part." He goes on to point out some of the possibilities for helping unmarried mothers continue their education.

AEC accepts applications for graduate program

THE Atomic Energy Commission is now accepting applications from U.S. and foreign graduate students for advanced courses in reactor operations supervision and reactor hazards evaluation to be conducted at Oak Ridge National Laboratory. The courses will begin on September 23, 1963. AEC will accept applications until June 15. The tuition for each course will be $2,000.

U.S. citizens must be sponsored by AEC, AEC contractors, or other Government agencies. They should apply to the Director, Education Division, Oak Ridge National Laboratory, Oak Ridge, Tenn.

Foreign students must have the approval of their governments, and must apply to AEC through their embassies or legations in Washington, D.C. The Agency for International Development, the International Atomic Energy Agency, the Organization of American States, and the World Health Organization offer assistance to students unable to meet the tuition fee.

All candidates must have bachelor's degrees in chemistry, physics, metallurgy, mathematics, or engineering physics, or in aeronautical, chemical, civil, electronic, general, mechanical, metallurgical, or nuclear engineering.

The course in operations supervision trains the student in basic nuclear engineering. The hazards evaluation course trains the student to evaluate the hazards of a reactor.

This will be the sixth session of the international reactor technology program. Since the program began in 1959, 148 students from 23 countries, including the United States and Puerto Rico, have attended.

Concerts for young visitors

THE NATIONAL SYMPHONY will offer free concerts for young people visiting Washington, D.C., between April 23 and May 23. Called "Music for Young America," the concerts will be given 6 nights a week in the auditoriums of U.S. Government buildings. This will be the 8th year for the young people's concerts.

Tickets can be obtained in advance by writing to the National Symphony, 2101 16th Street NW., Washington 9, D.C.

Presidential papers add 11th volume

THE Office of the Federal Registrar recently added an 11th volume to its series on the public papers of the Presients of the United States: a record of the second year of Harry S. Truman's administration. Other volumes of the series are on the 8 years of President Eisenhower's administration, the first year of President Kennedy's, and the first year of President Truman's. Volumes on the other years of Mr. Truman's administration and of Mr. Kennedy's will be issued from time to time. Each volume contains transcripts of news conferences and speeches, the text of messages to Congress, and other White House material. The volumes are variously priced—the new one is $6 a copy—and can be obtained from the Government Printing Office, Washington 25, D.C.

Report on young workers

COMMUNITIES have received an appeal from the Secretary of Labor, W. Willard Wirtz, to mobilize resources to help young people to make the transition from school to work. The Secretary made the appeal in releasing a report of a study completed by the Bureau of Labor Standards in his Department on the problems of young unemployed people and of what can be done to meet them. The Secretary pointed out that most of the problems of young unemployed workers can be most effectively met by the local community.

The report, "Design for Community Action," is a study of community action that has proved successful in meeting the problems of unemployed young people. It contains background information; an analysis of the present and projected picture; and information on the work of Federal, State, and volunteer agencies, the problems confronting young job seekers, and community programs.

Single copies of "Design for Community Action" (Bulletin 248) are available without charge from the Bureau of Labor Standards to institutions and organizations working with the problems of young workers, such as schools, religious groups, local governments, public employment services, social agencies, labor unions, and community welfare councils. The report is also available from the Superintendent of Documents, for 20 cents a copy.

Surplus property report

THROUGH the provisions of the Federal Property and Administrative Services Act of 1949, the United States Department of Health, Education, and Welfare made $71,533,693 worth of surplus property available to the States for education, public health, and civil defense purposes during the last quarter of 1962. Real property accounted for $8,338,109 and personal property for $63,195,584. The totals are contained in the Department's quarterly report to Congress on the program.

Under the act, the Department makes property which the Federal Government no longer needs available to educational and public health agencies and civil defense organizations of State and local governments and to eligible nonprofit health and educational institutions exempt from Federal taxes. Property is distributed through the Department's nine regional offices.

Property transferred to the States includes such items as school and hospital building sites; buildings suitable for college dormitories or faculty housing; motor vehicles; hospital, school, and office furniture; hand and machine tools; motion picture projectors; laboratory equipment; and school supplies.

In our sister magazines

Several articles of interest to educators appear this month in other periodicals published by the U.S. Department of Health, Education, and Welfare. For example, in—

AGING, *March, a number of news items on education for persons working with the aging.*

CHILDREN, *March–April, a series of articles on the problems of young unmarried parents. It includes an article on their need for education and ways in which it can be provided.*

HEALTH, EDUCATION, AND WELFARE INDICATORS, *March, a feature article on school assistance in federally affected areas.*

VOCATIONAL REHABILITATION RECORD, *March–April, a series of articles on the handicapped child. It includes articles on special education.*

These magazines can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. *Aging*, monthly, $1 a year, 10 cents a single copy; *Children*, bimonthly, $2 a year, 25 cents a single copy; *Indicators*, monthly, $3.50 a year, 35 cents a single copy; and *VR Record*, bimonthly, $2 a year, 25 cents a single copy.

Military bands make their first recordings

Music by the four major U.S. military bands—the Army, Navy, Marine Corps, and Air Force—will be available on recordings for the first time this spring. RCA Victor Records will produce the recordings and will turn over profits from the sales to the National Cultural Center in Washington, D.C. Each band will produce an album of American military music and patriotic songs. Each album will be different, except that each will include the National Anthem.

Both the Department of Defense and the American Federation of Musicians are supporting the project.

Peace Corps in Latin America

THE NUMBER of Peace Corps volunteers in Latin America totaled 1,161 on January 15, 1963. By the end of 1963 there will be about 9,000 volunteers overseas, the largest concentration of whom will be working in Latin America.

Volunteers who recently began assignments in Latin America include a group of secondary school teachers in Costa Rica, the first volunteers to go to that country; 30 English teachers and several physical education instructors in Colombia; well-drillers and farm cooperative workers in the Dominican Republic; and health and rural development workers in Bolivia. Volunteers scheduled to go to new posts in March include health workers for Panama and rural development workers for Guatemala.

U.S. and U.S.S.R. exchange book exhibits

"TECHNICAL BOOKS USA," an exhibit of about 7,000 representative U.S. books and reference publications are on a 5-month tour of three cities (Moscow, Tashkent, and Alma Ata) of the Soviet Union, through a cultural agreement between the two countries. The books are on engineering, medicine, the theoretical and applied sciences, arts and crafts, agriculture, and business administration. The purpose of the exchange is to give the people of the two countries opportunities to become acquainted with the scope and character of material on technical subjects available to the people of the opposite country. A counterpart U.S.S.R. exhibit will tour three as yet unspecified U.S. cities.

NANCY E. WOOD

Indentifying speech disorders in the classroom

SPEECH DIFFICULTIES of school children usually stem from subtle causes and can go unrecognized. In many instances it is up to the classroom teacher to identify the child with a speech problem and to refer him to a speech correctionist. To fulfill his responsibility to the child with a speech difficulty, the teacher must know what speech problems are and how to recognize symptoms. The purpose of this article is to give the teacher some of the information he is seeking.

A child with speech difficulties may have a problem in *phonation*, *fluency*, *articulation*, or *language development*. The child with a *phonation* problem has an unpleasant or deviant voice. The speech of a child with a *fluency* problem ranges from hesitancy to severe interruptions in speech flow. The child with an *articulation disorder* forms his sounds defectively and inaccurately. The child with a *language development disorder* has great difficulty in understanding the speech of others, an inability to organize thought processes for speech, or both. These disorders can occur in isolation or in combination.

Problems of phonation

Problems of phonation or voice disorders have either organic or nonorganic causes. Organic disorders arise from structural anomalies of the larynx, pharynx, or other parts of the vocal mechanism, such as vocal nodules, thickening of the larynx, or, in the extreme, removal of the larynx. Most voice problems, however, have nonorganic causes (e.g., environment or emotion) which result in the misuse or abuse of the vocal mechanism.

Dr. Wood, specialist on speech and hearing disorders, was with the Office of Education, Section on Exceptional Children and Youth, when she wrote this article; she is now with the Public Health Service. She has been an associate professor of speech and language pathology at Western Reserve University and the principal investigator for a Cooperative Research study of children with language disorders. This is Dr. Wood's second article for School Life. *The first, "Language Disorders: Major Barriers to Communication," appeared in June 1961.*

Problems of phonation cause deviations in *pitch*, *loudness*, *quality*, and *flexibility* of tone. The pitch of the voice may be too high, too low, or inappropriate for the age and sex of the child. The voice may be too loud or too soft for normal communication. It may be unpleasant because of nasality, breathyness, hoarseness, harshness, or denasality. It may be monotone and unvarying in tonal quality, or staccato with patterned flexibility.

In the past, voice disorders were thought to be less common in children than adults, but recent investigations have found that voice disorders occur more often in children than previous clinical evidence had indicated. Early detection of even minor deviations is very important to prevent severe voice problems in young adults.

Usually, we are not concerned when a young boy has a low-pitched, gutteral, raspy voice, or when a young girl has a high-pitched, squealing, breathless one. Unfortunately, we associate these vocal qualities, no matter how irritating they may be to both speaker and listener, with accepted masculine or feminine characteristics. Yet, "what we say" is often judged by "how it sounds," and an unpleasant voice can restrict a young person's choice of profession and jeopardize his emotional and social confidence. An unpleasant voice, moreover, may be symptomatic of vocal damage requiring medical attention.

The majority of disorders in children are associated with voice strain or vocal misuse, both of which can cause the voice to become hoarse, raspy, or strident. Such deviant voice qualities may be familial and characteristic of more than one member of a family; they may stem from a genetic physical defect, such as maldevelopment of the larynx or pharynx. Environment can also produce an unpleasant voice, particularly in children brought up in families or groups of people who use loud, bombastic speech. Obviously, if a child is to be heard in a noisy environment, he must speak in a loud voice. The strain of speaking loudly when the vocal mechanism is developing can harm the voice permanently.

Not all unpleasant voices in children can be traced to family or environment. Some are caused by natural or deliberate strain. Some children strain their voices on playgrounds, in swimming pools, or at other places of activity where screaming and yelling are routine. Some children abuse their voices by imitating the gutteral or falsetto voices of motion-picture or television personalities. Some youngsters misuse their voices in an effort to

focus attention on themselves. A teacher who suspects that attention-getting is the reason for poor speech should study the child closely to determine the emotional causes of his behavior.

An undetected hearing loss can cause voice disorders in children. Actually, a mild undetected hearing loss can create a more confusing problem than a profound loss that has been diagnosed and treated. Because of a hearing loss, a child's voice may be too loud, too soft, or monotonous, for it is through hearing that the child learns to monitor both the pitch and volume of his voice.

As these examples point out, a voice disorder may be symptomatic of a more basic problem. For this reason, a child with a deviant voice quality should be referred to a physician for a laryngeal examination prior to being scheduled for help by the school. Following a physician's diagnosis of the cause of the disorder, the speech specialist can select therapeutic procedures more wisely.

Fluency problems

Fluency problems in speech are not rare, for many normal children, particularly those between the ages of 5 and 8, speak too rapidly to be understood. In addition to speaking too rapidly, many normal children are not fluent and may repeat sounds or words or even phrases. The interjection of extra sounds, such as "well, uh," or vocalization, such as "uhmm," sometimes are a child's attempt to master merging speech patterns while he controls his faster moving thought processes. Usually rate and fluency problems diminish as the child grows older and is able to coordinate thinking and speaking processes.

The speech pattern of a child who speaks too rapidly *and* without fluency is called *cluttering*. When cluttering interferes with the child's ability to communicate or causes him to be uncomfortable when speaking or conversing, he needs the professional attention of a speech and hearing specialist. Symptoms of cluttering are often found in children who are unusually excitable, nervous, or high strung. They are also found in emotionally disturbed children or those with neuromuscular disorders.

Authorities on speech warn that stuttering, a severe fluency problem, must not be mistaken for cluttering. Children who stutter undoubtedly need professional attention, and classroom teachers should refer them to the speech specialist for examination. But, because more harm than good can result from cursory, superficial treatment, the speech specialist must weigh many factors before scheduling a stutterer for help. He makes his decision usually on the basis of his own professional training, the schedule requirements of his particular position, and the other special services the school offers.

Though many public schools have done so, it is not easy to operate successful programs for stutterers. For one thing, helping the stutterer is time consuming; it often necessitates consultation with other specialists and with the stutterer's parents. If the school has a large number of stutterers, one speech specialist may not have time to help each stutterer and the many children with other types of speech and hearing problems as well.

Having other sources of evaluation and treatment available is another important factor in treating the stutterer. Rapport between specialist and child is of major importance, and when it is in the best interest of the child, the specialist may refer him to another source for help with his problem. It also is extremely important for his parents and other members of his family to understand the problems of the stutterer.

In any event, the problem of stuttering cannot be helped by rote procedures directed toward the child alone, for the causes of the problem must be carefully investigated. The investigation, of course, requires the teacher to work closely with other specialists qualified to help.

Articulation disorders

The largest proportion of children with speech disorders in our schools have defective articulation. Any child who distorts, substitutes, or omits sounds which, according to his chronological age he should be able to form accurately, has an articulation disorder. Unfortunately, articulation disorders are often considered simple or uncomplicated and, by some, unimportant. But, articulation disorders, like other speech problems, are usually symptomatic of more basic problems with many causes. Hearing loss, mental retardation, emotional disturbance, development problems, neurological disorders—all these can cause articulation disorders.

There are, of course, some children who do not speak clearly although they have normal hearing and are intelligent and emotionally stable. Their basic speech immaturity is characterized by distortion, substitution, or omission of speech sounds without consistency or pattern. Such defective articulation does not benefit measurably from direct speech correction. Less direct treatment, such as group therapy, play therapy, or speech stimulation is sometimes beneficial. Quite often speech correction for these children when sounds are emerging serves only to highlight the problem for both child and parents, and pressures on the child may result in behavior problems. It is wise to have the child examined by a specialist in speech and hearing disorders so that the need for speech correction can be carefully determined. The speech correctionist may recommend that corrective work not start until the child's speech has developed further.

Children frequently have defective articulation that is distinctly patterned. Some consistently substitute certain sounds for others: *Wabbit* for *rabbit*, *take* for *cake*, *dirl* for *girl*. Others omit sounds in the initial, medial, or final positions: *Oggy* for *doggy*, *bayee* for *baby*, *ca* for *cat*. Usually these problems respond effectively to direct speech correction. The corrective procedures may accent muscle training to increase the child's kinesthetic awareness of how certain dental or glottal sounds are made. Through auditory training the child may learn to experience differences in sounds and to recall these differences in speech production. The child can be given an opportunity through visual training to *see* differences in the production and articulation of sounds by watching the teacher's mouth, and can be taught to reproduce these sounds accurately. Speech correctionists often use a combination of the kinesthetic, auditory, and visual methods in helping children with articulation disorders. The majority of children with patterned substitutions or omissions show fairly rapid and continuous improvement with help from a speech specialist.

Language disorders

Some children with delayed speech development show little or no speech improvement from the usual speech correction procedures. In the early grades their major problem is an articulation disorder, but eventually they have problems with reading and writing as well. Reading, writing, and speaking have one major purpose in common: the reception and expression of *word* symbols. If a child has great difficulty performing tasks that require the comprehension and expression of verbal symbols yet is able to perform adequately on nonsymbolic tests, his inadequate performance may be classified as a language disorder.

The three types of language disorders more frequently brought to the attention of speech and hearing specialists, classroom teachers, and school administrators are *aphasia*, *alexia*, and *agraphia*. The terms *dysphasia*, *dyslexia*, and *dysgraphia* are used to indicate a partial rather than a total problem in the use of symbols.

Aphasia and *dysphasia* are disorders either in the reception or expression of spoken language. Although their symptoms are the inability or the limited ability to understand or produce the spoken word, they are not problems of speech production primarily. The child, for example, may not be able to understand the word *book* because he is unable to associate the name of the object (a symbol) with the actual object itself. Because he does not comprehend the word and cannot apply it to the object, he is unable to express himself adequately using the word. Some children with this type of disorder do not develop speech; others learn speech patterns and can talk, but they have great difficulty communicating ideas. Often their speech is random, and they may complain that they cannot "find words" to express themselves.

Alexia and *dyslexia* are names for the inability or limited ability to receive, understand, and associate written words with an object or an experience partly because of an inability to "revisualize" or "reauditorize" words. A child with this problem encounters difficulty in organizing his responses because he does not retain visual auditory images of words long enough to reproduce them. He may reverse entire words, reading *saw* for *was*, or *ton* for *not*. He may omit initial or final sounds of words. He may be unable to relate verbally what he has read silently. Basically, dyslexia is a learning disorder resulting in difficulty in remembering or recalling written verbal symbols.

Agraphia and *dysgraphia* are terms for the inability or limited ability to describe an object or experience in written words—a writing disorder. Agraphia and alexia are interassociated, since both are caused by difficulties with written symbols and a child must be able to read before he is able to write.

Children with these language disorders cannot benefit to the maximum from typical speech correction procedures, for their problems are caused by impairment of the central nervous system. Treatment of their problems must not be peripheral. Because of their significant delays in comprehending speech concepts and their difficulty in selecting words to express themselves, these children have across-the-board educational needs.

This article has described in broad terms the four types of impaired speech that occur with the greatest frequency in school-age children to help the classroom teacher to identify them. The teacher can find additional and more specific information in these publications.

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EDITH S. GREER

The academically talented

How are the academically talented pupils spending their time in high school? How many credits does the typical pupil earn? the able pupil? What proportion of his time does the able pupil spend on academic subjects? the less able? How much effect does academic ability have on the choice of subject? In an effort to learn the answers to these and similar questions, the Office of Education has made a survey of a sampling of the 1958 graduating class of public high schools. The survey covered data on the schools by enrollment including the total number of Carnegie units required for graduation, the number required in selected subjects and electives offered, and on the graduates, including their distribution by intelligence quotients, total credits earned toward graduation, credits earned in various subjects, types of curriculums in which they were enrolled, and their class rank.

Two reports of the survey have been made: a preliminary report in 1961 and What High School Pupils Study, *by Edith S. Greer and Richard M. Harbeck* (OE–33025), Washington, U.S. Government Printing Office, 1962, 146 p. 60 cents.

In her article below, Dr. Greer, using data from the survey, compares the academically talented with the less talented pupils in public schools enrolling 500 or more pupils.

THE WHOLE NATION is interested in the education of the talented. Industry, foundations, and Government are searching for talented boys and girls and means of providing a better education for them; testmakers are devising new and better means of identifying them; researchers are turning out studies and plans for teaching them; and educators are creating and experimenting with new materials, methods, and programs for them. But what are the talented boys and girls doing?

The majority are not working hard enough in most of the schools he visited, Dr. Conant says.[1] We too believe that many could have worked harder and we base our belief on the record of the academically talented—those in the top 15 or 25 percent in ability—in the 1958 graduating classes of schools enrolling 500 or more pupils.

A comparison of the records of the upper 25 percent in academic ability with those of pupils in the lower 25 percent shows that the differences in programs and achievement were not as great as the differences in academic ability indicate they might have been. On some counts the thin margin of difference suggests that the pupils in the upper 25 percent may not have been working at the top of their capacity.

On the whole, however, the pupils in the upper 25 percent had higher achievement than those in the lower had. Differences between the two groups on four counts show the influence of academic ability on programs and achievements—

In curriculums

- Approximately 5 times more of the able than the less able were enrolled in college preparatory curriculums (see fig. 1).
- Five times more of the less able than the able were enrolled in general curriculums.

In credits earned

- In 4 years of study the median pupil in the able group earned only 1 more credit than the median pupil in the less able group.
- 43 percent of the able and 21 percent of the less able earned 18½ or more credits.
- 14 percent of the able and 43 percent of the less able earned fewer than 16½ credits.

In credits in academic subjects

- The able pupils earned 84 percent of their credits in academic subjects;

[1] James Bryant Conant, *The American High School Today: A First Report to Interested Citizens*, New York, McGraw-Hill Book Co., Inc., 1959.

Dr. Greer, specialist in curriculum coordination, came to the Office of Education in 1956 from the Nebraska State Department of Education, where she had been curriculum coordinator. Earlier Dr. Greer had been dean of instruction and chairman of the department of education of the Nebraska State Teachers College, teacher of secondary school mathematics, county superintendent of schools, and associate director of curriculum research for F. E. Compton and Co., Chicago. She is the author of Learning to Know Your Children *and numerous articles, curriculum guides, and State department publications.*

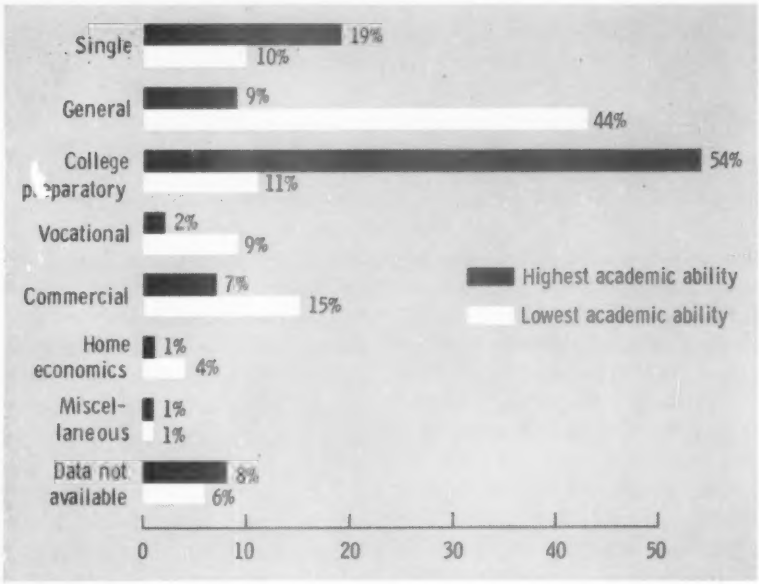


Figure 1.—Graduates from large high schools in 1958 who had been in the highest and in the lowest quartile in academic ability: Percentages enrolled in each curriculum specified.

the less able, 66 percent (see fig. 2).

- Both groups earned one-fourth of their credits in English and one-fifth in social studies.
- The able group spent 16 percent of their programs in mathematics, 14 percent in science, and 12 percent in foreign language; the less able, 10 percent in mathematics, 10 percent in science, and 2 percent in foreign language.
- The able pupil was likely to earn 1 credit less in business and social studies but 1 credit more in mathematics and 1¼–2 credits more in foreign language than the less able.

Although many pupils in the upper group earned a large percentage of their credits in academic subjects, most of these credits were not earned in advanced academic courses.

The less able group earned a higher proportion of their credits in such nonacademic subjects as industrial arts, business, home economics, music, art, vocational education, and physical education. In all nonacademic subjects except music, art, and health, a higher percentage of the less able than the able earned some credits. Approximately half of both groups earned credit in music; about one-third of both, in art; and one-fourth of both in health.

Business was the most popular nonacademic subject with both groups, physical education second. With the able group the order of preference of other nonacademic subjects was music, art, industrial arts, health, home economics, and driver education. With the less able the order was industrial arts, home economics, music, art, health, vocational education, and driver education.

The differences between the programs of the two groups might have been greater if school requirements had not influenced programs as much as they did. Almost all of these schools required 3 credits in English and a majority required 4; four-fifths required 2 credits in social science, and one-half required 3; four-fifths required at least 1 credit in mathematics and 1 in science. This means that a great majority of these schools required at least 7 academic credits for graduation.

In class rank

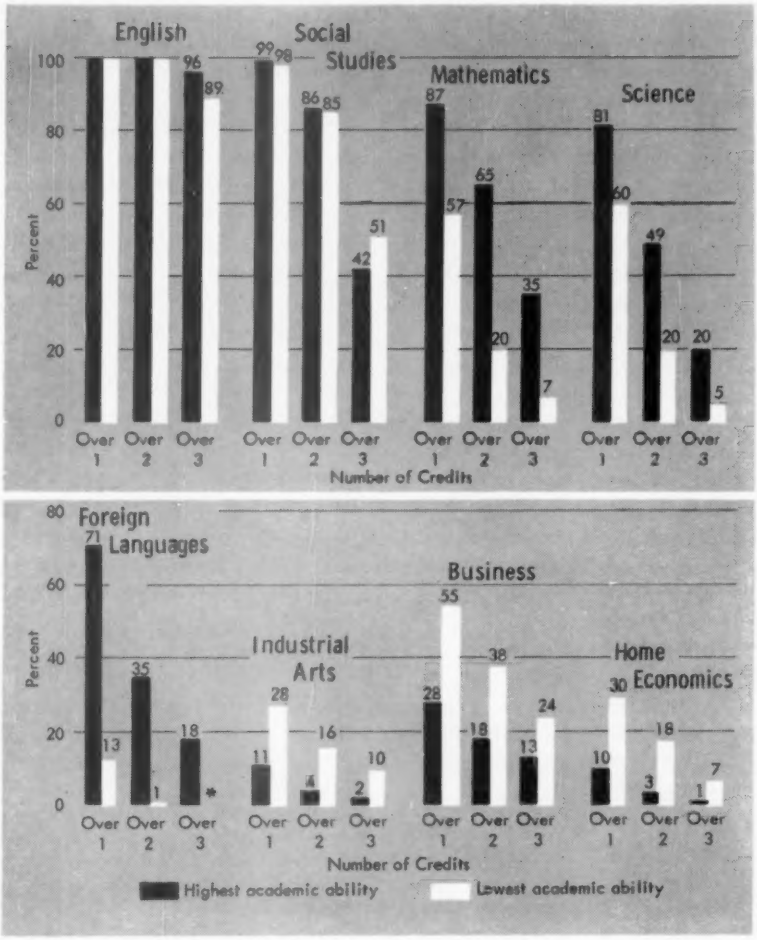
- Approximately 60 percent of the able ranked in the upper one-third of their classes, but 12 percent ranked in the lowest one-third (see fig. 3).
- 10 percent of the less able group ranked in the upper third and 28 percent in the middle third.
- 28 percent of the able and 32 percent of the less able ranked in the middle third.

If these pupils were marked according to uniform standards, all pupils in the highest group should have ranked in the upper third of their class. Too large a proportion did not. There may be many reasons why 12 percent of the highest group placed in the lowest third in class rank and 28 percent of them in the middle rank—for example, lack of interest, lack of opportunity to attend school regularly, illness, or poor home conditions. But whatever the reason, lack of interest or opportunity, the result was the same—according to their teachers' evaluations they did not work at top capacity and did not get all they should have out of 4 years of high school. In contrast, the 10 percent of the lowest ability group who placed in the upper third in class rank may have pushed themselves unusually hard to attain good grades.

On the whole, the percentage of the highest ability pupils who earned high marks was twice as high as that of the lowest group.

IN GENERAL our data compare well with Dr. Conant's findings.[2] In his 1958 visits to 22 large high schools—most of them had graduating classes of 100 or more—he found

[2] Conant, *The American High School Today.*



*Less than 0.5 percent.

Figure 2.—Graduates from large high schools in 1958 who had been in the highest and in the lowest quartile in academic ability: Percentages who had completed more than 3 credits, 2 credits, or 1 credit in the subject fields specified. (Only those nonacademic subjects are included in which significant differences were noted between the enrollments of high- and low-ability students.)

that in 14 a majority of the academically talented boys (defined as the upper 15 percent in academic ability) in the 1957 graduating class carried 7 years of mathematics and sciences and 7 years of English and social studies. He found no school in which a majority of the girls carried as heavy a program. In 6 of the 22 schools he found that a majority of the academically talented boys and in 11 a majority of the academically talented girls studied at least 3 years of foreign language.

The 1961 report [3] of our survey shows that of the 951 pupils in the upper 15 percent in academic ability enrolled in large schools (enrollment 500 and over) approximately 30 percent earned at least 3 credits in mathematics, 3 in science, 3 in social studies, and 4 in English. In addition almost 40 percent of the pupils earned at least 3 credits in foreign language.

Dr. Conant also found that in 4 of the 22 schools a majority of the academically talented boys carried rigorous academic programs consisting of 7 years of English and social studies, 7 years of mathematics and science, and 3 years of foreign languages. He found no schools in which a majority of girls carried as heavy a program.

Our 1961 report shows that of 951 pupils in the upper 15 percent in academic ability and enrolled in the large schools, 15 percent earned at least 3 credits in mathematics, 3 in science, 3 in social studies, 4 in English and 3 in foreign language.

Even though it is impossible to make specific comparisons between our findings and Dr. Conant's, both

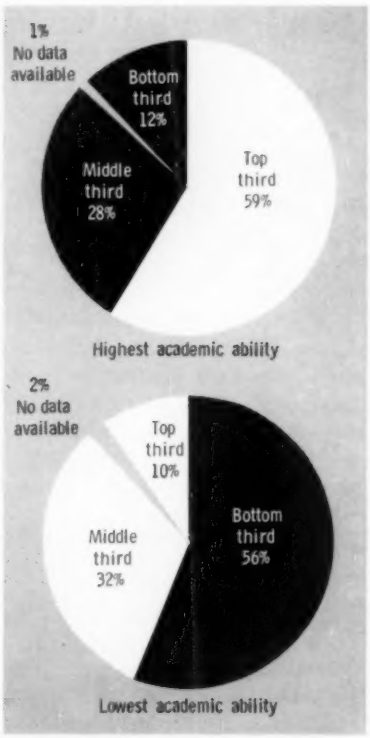


Figure 3.—Graduates from large high schools in 1958 who had been in the highest and in the lowest quartile in academic ability: Percentages at each of the three levels of class rank.

[3] *High School Pupil Programs, 1961: A Preliminary Report*, by Edith S. Greer and Richard M. Harbeck (OE-33021), Washington, U.S. Government Printing Office, 1961, 31 p., 20 cents.

studies point to the same conclusions. Dr. Conant came to the conclusion that in most of the schools he visited the majority of the academically able boys and girls were not working hard. Our data tend to strengthen his findings, though perhaps ours give a slightly more favorable picture.

IN REPORTING these facts on the 1958 graduates we make no attempts to evaluate the quality of the programs offered or to determine whether the programs heavily weighted with academic subjects were the best ones for the pupils who took them. Nor do we make any effort to determine the certain effect of the wide difference in cultural, racial, education, and economic background on pupils' achievement. It can be safely assumed, however, that the boys and girls in the class of 1958 were fairly typical of all high school classes and therefore differed widely in background as well as in academic ability.

Since this is the first nationwide study of pupils' programs the Office has made, it is impossible to determine whether the current emphasis on academic subjects and the pressure on pupils to accomplish more in these areas are having any effect. The Office plans, however, to make followup studies that will reveal trends in pupils' programs and achievement.

Statistic of the Month

Adults and their level of educational achievement

Divide the present adult population in the United States into age groups and compare them from the standpoint of the education of their members, and you will find that the younger the group the higher the level of educational attainment.

This is what the Bureau of the Census found in its March 1962 Current Population Survey. In the youngest group—those between 25 and 29 years of age—two out of three had completed high school, but in the oldest group—those over 65—the ratio was not much better than one in five. Even when the groups were subdivided into the white and the nonwhite, the basic fact remained unchanged: the older the group, the lower the percentage who had at least graduated from high school. For all groups the percentages were as follows:

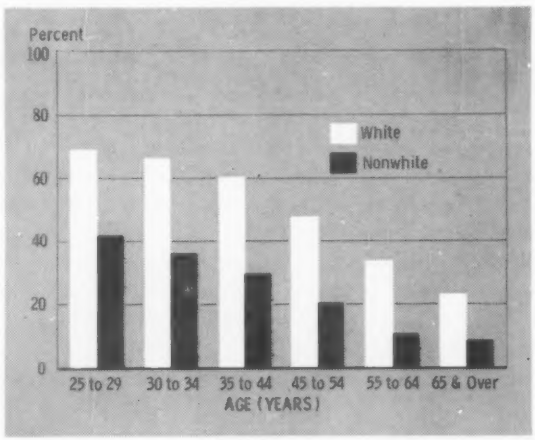
Age group	Total, percent	White, percent	Nonwhite, percent
25 to 29 years	66.0	69.3	41.6
30 to 34 years	62.7	66.3	36.4
35 to 44 years	57.2	60.5	30.3
45 to 54 years	45.1	47.8	20.6
55 to 64 years	32.1	34.4	10.7
65 years and over	22.6	23.8	8.1
Total, all groups	46.4	48.7	24.8

Like the tabulation above, the chart opposite shows a marked difference between white and nonwhite persons. Almost half of all white persons 25 years old and older are at least high school graduates, whereas only one-fourth of the nonwhite are.

In the youngest group of adults, including both the white and the nonwhite, a slightly higher percentage of women than of men had completed at least high school. But a much higher percentage of the men had gone to college. The breakdown of this age group (25 to 29 years old, March 1962) by years of school completed is as follows:

Years of school completed	Total, percent	Men, percent	Women, percent
Elementary school:			
None	0.6	0.6	0.7
1 to 4 years	1.8	2.5	1.2
5 to 7 years	5.1	5.4	4.8
8 years	6.6	6.7	6.4
High school:			
1 to 3 years	20.0	19.0	20.8
4 years	40.6	35.0	45.8
College:			
1 to 3 years	12.3	13.6	11.1
4 years	9.6	11.4	7.8
5 years or more	3.5	5.8	1.3
Total	100.0	100.0	100.0

These data were taken from Current Population Reports, Series P–20, No. 121, "Educational Attainment: March 1962," published by the Bureau of the Census, U.S. Department of Commerce, February 7, 1963.—Rose Marie Walker, educational statistician, Office of Education.



Percentage of civilian population who are at least high school graduates, by age and color, United States, March 1962

HARRY F. SILBERMAN

Research on programed instruction at SDC

For the past 4 years the System Development Corporation, a nonprofit research institution, has been working on programed instruction, with the purpose of determining the conditions under which instruction is most effective and developing an instructional system which meets these conditions. It is interested primarily in interactions among three variables—the task, the learner, and the method—and its objective is to determine what methods are best for what students in what tasks.
Dr. Silberman here describes two of SDC's series of projects, both of which are supported in part by grants under title VII of the National Defense Education Act. A description of the research tools and an account of how they were developed are on page 14.

ONE PROJECT on programed instruction conducted by the System Development Corporation with support from title VII of the National Defense Education Act is a hypothesis-testing study to determine the effectiveness of two forms of a geometry program with three types of students.[1] The variables were the achievement characteristics of the students (overachievers, normal achievers, and underachievers) and the form of the program (rote and conceptual). The hypothesis was that a significant interaction would be obtained between the two variables: overachievers would perform better than underachievers on rote materials and one group would perform as well as the other on the conceptual form; in other words, the conceptual form of the program would eliminate motivational differences.

The subjects tested were 258 students in second semester geometry classes at three secondary schools. A student whose first-semester achievement score exceeded the achievement score predicted by his aptitude score by at least one standard error of estimate was classified as an overachiever; a student whose score was *below* his predicted score by at least one standard error was classified as an underachiever. All other students were classified as normal achievers.

The two forms of the program covered seven theorems and selected topics in coordinate geometry. The rote form proceeded from the beginning to the end of each theorem; the conceptual form started from what had to be proved and worked backwards to what was given. The rote form supplied steps in the theorems without stressing the strategy of proof; the conceptual form discussed methods of attack and required the student to supply missing steps in the proof. A criterion test was administered at the beginning and at the end of the 3-week period of the experiment. Students studied a programed booklet during each class.

Although total test scores for all the schools indicated no preference for one form of the program over the other for different achievement levels, analyses of subtest scores for individual schools yielded some interesting differences. At one school, overachievers did better on the rote form, but underachievers and normal achievers did better on the conceptual form. At the second school overachievers did better on the conceptual form, but normal achievers did better on the rote. At the third school, all students did significantly better on the rote method.

The findings indicate that once an overachiever, always an overachiever; and that factors other than those represented by the score on a general aptitude test are responsible for the variance of the post-test scores. Perhaps the discrepancy of scores on the aptitude and achievement tests reflect motivational factors that reflect achievement in geometry but not general aptitude. It has been concluded that no matter what the form—rote or conceptual—there is little chance that it will vitiate differences between overachievers and underachievers.

SDC is also conducting a project with title VII assistance to develop programing methods and theory through exploratory research and individual tutoring. The object is to develop rules for improving the design of instructional programs. It is attempting to determine ways in which these rules differ for (1) elementary school pupils in contrast to secondary school pupils, (2) verbal in con-

[1] Harry F. Silberman, John E. Coulson, Evelyn Gunn, and Ralph J. Melaragno, *Development and Evaluation of Self-Instructional Materials for Underachieving and Overachieving Students*, Technical Memorandum 727, Santa Monica, Calif., System Development Corporation, 1962, 115 pp.

Dr. Silberman is in charge of the Instructional Systems Group at the System Development Corporation, Santa Monica, Calif. He is a member of the American Educational Research Association's committee for developing evaluative criteria for autoinstructional programs and devices.

The Tools

Here Dr. Silberman describes the tools used in the two projects he discusses in his article.

IN ITS INITIAL RESEARCH on programed instruction the System Development Corporation used equipment that was manually operated. The experimenter sat behind a wooden screen and, through a window in the screen, presented the instructional material, on cards, to the student. The student responded by pressing buttons, which activated lights on the experimenter's side of the screen.

It soon became apparent that this device was not suitable: it did not permit use of the intricate methods of sequencing subject material that were necessary in order to measure the effect of dynamic adaptation of instructional procedures on the individual student. It was therefore decided to use a computer—that is, to program a computer to act as a teaching machine.

The first computer-based teaching system used as a control unit was a small general-purpose computer about the size of a home refrigerator. The student sat in front of an electric typewriter while a rearview random-access projector containing 35mm slides showed him multiple-choice questions. He indicated his choice by pressing the corresponding typewriter key. Through the typewriter the computer informed him whether his choice was correct; if it was correct the computer then selected and presented a new slide. The selection was based on (1) the student's errors in answering questions, (2) the speed of his response, (3) the student's evaluation of his own performance, and (4) prestored information about the student's aptitude and achievement. If the student had trouble during the lesson, the computer recognized the fact and supplied remedial material; if he did exceptionally well, it omitted some material to permit him to progress more rapidly.

The first system was soon replaced with an expanded system, called CLASS for Computer-Based Laboratory for Automated School Systems, which can give individual instruction to as many as 20 students at once (fig. 1). We consider it not as a prototype for a school but as a research facility that permits study of administrative and instructional problems.

The control unit for CLASS is a large high-speed general-purpose digital computer (fig. 2), for which three programs have been developed: (1) A lesson assembler program, to prepare lessons for presentation, (2) a control program, to direct the presentation of the lesson and record the results, and (3) a data-analysis program. The classroom controlled by the computer contains, in addition to the student stations, monitoring equipment for the teacher; adjacent to the classroom are special rooms for administration, counseling, and observation.

Each student has a display unit, or film viewer, and a response device. On the one he reads the multiple-choice questions; on the other he indicates his answers. The computer records and evaluates each answer and, by flashing small lights on the student's response device, immediately supplies the feedback—that is, tells the student whether he was right. The computer then determines which questions the student should see next and displays the number for it on the response device,

trast to quantitative subject matter, (3) children of different aptitudes, and (4) learning objectives requiring different degrees of transfer. Subjects under study are reading and arithmetic at the first-grade level, Spanish at the junior high school level, and geometry at the high school level. Each topic is being studied independently so that programing hypotheses uncovered in each subject can be compared.

The research on reading is being conducted on materials designed to teach the consonant-substitution skill of blending an initial consonant letter with the adjoining sound in single-syllable consonant-vowel-consonant words. The instructional material covers most combinations of the initial consonants *r*, *b*, *m*, *f*, *s*, and *p*, with the endings *an*, *at*, *it*, and *in*.

The material developed for teaching arithmetic is designed to teach what a set is, how to write a set, meaning of the equal sign, equality of sets containing the same elements, equality of sets with the same cardinality but differing elements, equality of a set with an Arabic numeral, and the union of sets.

Instructional material for research on the teaching of Spanish is designed to teach pupils to understand, speak, read, and write Spanish. The material on geometry is designed to teach concepts of geometric inequalities and

Figure 1. Students in CLASS during a demonstration lesson in French. As they use the computer-controlled units on their desks to answer the questions, a large-scale computer (see right) records and analyzes their responses within a fraction of a second.

the student turns to that number on his viewer, and the cycle is repeated again.

The teacher, with his monitoring equipment, keeps track of each student's progress and problems. Whenever a student is in trouble, an alarm light goes on in the teacher's console; and the teacher, as soon as he has an opportunity, takes action. He may, for example, press a button on his console corresponding to the student's position and make his own response device operate parallel to the student's so that he can observe the student's responses. The teacher can also call up, from a cathode-ray tube, other information about the student's performance that may be helpful in locating

Figure 2. The computer for CLASS. With its auxiliary equipment it occupies approximately 2,600 square feet in SCD's laboratory.

the source of his difficulty. Since the laboratory is now being equipped with a complete sound system, it will soon be possible for the teacher also to converse with the student from the console.

Early research at SDC clearly indicates that the effectiveness of a machine depends largely on the quality of the instructional material it presents. CLASS is no exception: the most important element in determining its effectiveness as a research facility is the instructional materials prepared for it. These materials must be prepared so that they can be tailored in the presentation to fit the needs of the individual student; they must permit him to go fast when he can and enable him to go slowly when he must. Eventually the preparation of materials will be aided by the computer; first, however, the principles of designing effective materials must be determined. Most of the current research at SDC is aimed at discovering these principles.

skills in proving theorems.

In each of the four programs experimentation proceeds in the same way. The experimenter gives a pupil a short sequence of items. If the pupil has difficulty, the experimenter interviews him to determine the cause and tries to eliminate it by tutoring him orally; for example, he uses analogies, describes the concept in simpler terms, has the pupil solve practice problems, alters the sequence and display characteristics of the item, or provides the pupil with different cues and feedback messages. When the pupil has resolved his difficulty, the experimenter makes a record of the program variation that effected the solution and follows this procedure of oral modification throughout with that pupil. The records of the tutoring sessions serve as the basis for the first program revision. When all pupils clearly have the same misinterpretation, the experimenters build into the program the modification which seems to clear up the difficulty.

SDC's technique of using successive empirical iterations during tutoring sessions to determine the variations in the program differs markedly from current practice in program revision. Most programs insert remedial branches and write remedial items that may or may not relieve the

Continued on page 17

FRED F. BEACH AND L. STANLEY RATLIFF

The school administrator's need for inservice education

THE MOST IMPORTANT single thing a school district could do to improve its school would be to permit or, if necessary, require its administrators to engage in well-planned programs of inservice education.

This statement in the recent publication by the American Association of School Administrators, *Inservice Training for School Administration*, underlines an idea that is receiving new and growing emphasis—the need for inservice educational programs. Like the physician or the scientist, the educational administrator must spend an increasing proportion of this time in keeping abreast of developments in his field. His preservice education, however extensive and thorough it might have been, provided only the foundation for his career; for the structure itself he needs the supporting framework which only inservice education can provide.

The need for inservice education and retraining is a product of the times. Knowledge is expanding with explosive force, and tremendous professional and technological advances are being made, with the result that vast changes are taking place in our society. These changes affect all professions and countless other occupations. "The skilled tradesman," says Seymour Wolfbein, director of the Labor Department's Office of Manpower, Automation, and Training, "must be retrained at least three times in his lifetime if he is to keep up with changes brought about by technological advancement."

If these changes mean so much to tradesmen, they mean even more to the administrators who direct the Nation's educational enterprises. It is difficult to conceive of an up-to-date school system whose administrator is not well-informed about current educational issues and the latest educational developments, and knowledgeable about the major social, political, and economic problems in our society. But changes are taking place so rapidly that the administrator who wishes to keep up to date cannot depend on chance or informal arrangements: he must seek the best possible means of continuing his education. Under the circumstances it is quite likely that in the years ahead inservice education for the educational administrator will equal or surpass in importance his preservice education.

DR. BEACH and DR. RATLIFF are, respectively, director, educational administration, and specialist, educational administration, Office of Education.

Inservice education today

At some point between his recognition of his need and his selection of a program, however, today's administrator meets a problem. He is confronted with hundreds of inservice offerings by different institutions and agencies; and though all these offerings are worthwhile in one way or another they all reflect a lack in broad design—a lack in coordination and in planning. He is forced to pick and choose, and he soon finds duplication of effort, lack of continuity, and sometimes even conflict of interest among the agencies and institutions, each of which, ironically enough, is attempting in its own way to do the same thing as all the others: help make him a better administrator.

In effect, he finds no inservice program at all, only inservice activities. Each institution or agency sponsoring these activities has for the most part ignored the work of the others.

Progress

The problem has become so acute that the American Association of School Administrators two years ago established a commission of nine leading educators and charged them with the task of studying the entire inservice education effort. Last month, at AASA's 1963 convention, the findings were released.

The commission had found "commendable islands of inservice activity," but it emphasized the need for a major overhaul of the current ideas about inservice programs for administrators. It underlined the fact that by tradition no agency or institution in the Nation has taken any substantial amount of responsibility for providing these programs.

Noting the absence of a "coherent design of advancement," the commission pointed out the imperative need for educational programs in general and inservice programs in particular that would enlarge the vision of administrators. If the school superintendent is to be effective in solving problems of the community, the commission said, he must have opportunities to renew and replenish his store

of intellectual capital: "he can scarcely be expected to go on and on indefinitely inspiring a staff and stimulating a community to develop and support forward-looking educational policy" unless he has, and takes advantage of, "opportunities for serious and deliberate study of the unresolved issues facing the Nation and the world."

The central theme of the commission's report is a strong plea for coordination of effort, for long-range planning, for a broadening of the goals of inservice education—none of which can be accomplished without a strong professional commitment to them. Not only must staff time be spent on them and budgetary allowances made, but school administrators themselves must have a genuine desire to improve themselves.

Inservice education tomorrow

If inservice education is to adequately serve the practicing educational administrator, the deficiencies pointed out by the commission should be corrected. Although the alert administrator will continue to do the best he can to keep up to date by whatever means happen to be available, this will not suffice. Attending conferences, lectures, and workshops; reading; and making other chance and informal arrangements—all these, though important, are not enough. A formal planned program will have to supplement the informal activities.

Planning the formal program calls for leadership of the highest order. It demands cooperative action—by State departments of education, local school boards, professional organizations, and colleges and universities. The practicing administrator will also have a part since the purpose of the program is to serve his need. The purpose and content of the program will, of course, be quite different from the regular graduate school offerings.

Not only must the program offerings be determined but some agency or institution must take the major responsibility for providing the offerings. This could be the task of our colleges and universities in cooperation with the organizations involved. Fortunately, the American Association of School Administrators and the University Council on Educational Administration are taking steps to assure that some agency or groups of agencies do take the responsibility. Providing planned inservice programs for educational administrators may well become a field of endeavor for colleges and universities that will rival in importance the preservice programs they already have.

Programed instruction

Continued from page 15

pupil's difficulty. They change the mainstream of the program when there is evidence of excessive rates of error; typical changes are based on seemingly plausible ideas of what should work rather than on techniques that have been tried and found to work. With each revised iteration SDC's program should provide better for individual differences; later trials should require progressively fewer changes in the program.

SDC will make a formal experimental comparison periodically between the latest revisions and the original version of the program. For these comparisons it will select an independent experimental sample of pupils. It will continue to make revisions until it obtains significant differences in favor of the revised materials. When comparisons of the original and revised program show clearly that the revised material is superior, no more revisions will be made. The experimenters will analyze the data obtained from pupils' responses to differing versions of the program for consistencies and patterns, and from the analysis will draw up a set of rules or generalizations on the variations that improved the program the most.

Research studies in progress go beyond the confines of programed instruction toward automated teaching as an integral part of a course of instruction. SDC is, for instance, developing motion pictures, program material, and a variety of instructional techniques for use in conjunction with a teacher for its program on Spanish instruction. The course will be used to compare a sequential listening-speaking method with a combined listening-speaking method of foreign language instruction.

Research at SDC will continue to emphasize the adaptation of instruction to individual differences. Because children in the early primary grades lack well-established study habits, SDC's researchers think the advantages of machine responsiveness to individual differences will be particularly evident with young children. Consequently, future research studies will use younger as well as older children as subjects.

Future research at SDC will continue to emphasize three aspects of instructional systems: The basic variables of sequence control that contribute most significantly to the effectiveness of programed instruction; the interaction among task, method, and learning variables; and the value of various self-instructional techniques under field conditions to determine ways in which laboratory findings can be applied in the classroom.

CHANNELS OF COMMUNICATION

A monthly report on programs and developments both in and outside the Office of Education that are related to the educational uses of television, motion pictures, teaching machines, language laboratories, and other media of communication.—By SETH SPAULDING.

Proposals for grants

Seventy-seven proposals for research and experimentation on the educational uses of television, radio, and other media of communication had been received in the Office of Education by February 1, the deadline for proposals to be considered at the May meeting of the Advisory Committee on New Educational Media. All seek grants-in-aid under title VII, part A, of the National Defense Education Act (NDEA).

Between now and May these proposals will be read and commented on by members of the Educational Media Branch of the Office and by 11 field readers. The readers are authorities on research in education, psychology, or communications media who have been selected for their experience and positions of leadership; they will first individually review the proposals and then will meet in Washington to consolidate their evaluations and suggestions. Their recommendations will be forwarded to the Advisory Committee, which will take them into consideration as it in turn studies the proposals and decides which ones to recommend to the Commissioner for approval. Up to now about 20 percent of all proposals for media grants under NDEA have been approved.

A preliminary review of the 77 proposals shows that certain media and certain types of problems seem to have captured the interests of many researchers. Thomas Clemens, senior research coordinator for the Branch, reports these points of emphasis:

√ The majority focus on programed instruction and self-instructional devices.

√ Many show interest in the use of certain media for special groups of learners. They emphasize such matters as how to prepare films and self-instructional programs for gifted or for retarded children, and how to use the media more effectively for such children.

√ In place of the one-time emphasis on the comparative effectiveness of the several media, emphasis is growing on ways of using the media more effectively. This change suggests that educators and researchers have come to accept the new media as effective instructional devices and are now turning to the task of finding the best ways of using them.

√ Many reveal strong interest in the role of the teacher in situations where programed instructional materials are used.

√ There is a new surge of interest in the use of the new media for the in-service education of physicians, teachers, and other professional workers.

√ There is a small but growing number of investigators interested in the uses of computers in education for noncomputational purposes (see the article on page 13 about CLASS).

Dr. Spauling is chief, Research and Services Section, Educational Media Branch, Office of Education.

Demonstration teams

Seven 2-man teams of educators strategically located across the country are available for engagements to demonstrate the educational uses of motion pictures, television, and other media of communication. These teams, which are equipped with kits containing films, slides, transparencies, display materials, and recorded tapes, not only present an overview of the possibilities of the various media for various subjects but can adapt their demonstrations to serve the particular interests of the institutions and organizations they are addressing.

The kits were prepared at San Jose State College, in a project directed by Jerrold E. Kemp and Richard Lewis under a contract between the college and the Office of Education. Office support was authorized by the NDEA, title VII, part B, which provides for dissemination of facts about the media. The members of the teams, all of whom are audiovisual specialists, worked with the project directors in planning and preparing the kits.

Any educational organization or institution or any citizen group wishing to schedule a demonstration should write to the team in its region. The teams and their headquarters are as follows:

New York, Syracuse University, Syracuse: Walter J. Mars, associate director, Audiovisual Center; Robert Cox, director, film library.

North Carolina: Kenneth McIntyre, director, Bureau of Audiovisual Education, University of North Carolina, Chapel Hill; Paul S. Flynn, supervisor, audiovisual education, State Department of Public Instruction, Raleigh.

Indiana: Gene Faris, Audiovisual Center, Indiana University, Bloomington; William Prigge, audiovisual supervisor, State Department of Public Instruction, Indianapolis.

Texas: Roy Frye, educational materials specialist, University of Texas, Austin.

Nebraska: University of Nebraska, Lincoln; Wesley Meierhenry, assistant dean, Advanced Professional Division, Teachers College; Robert Stepp, head, Bureau of Audiovisual Instruction.

California: Pierce Patterson, director, audiovisual services, Orange County, Santa Ana; Raymond Denno, audiovisual coordinator, Orange County State College, Fullerton.

Oregon: Henry Ruark, consultant on instructional materials, State Department of Education, Salem; James McDonald, director, Instructional Materials Center, Lane County, Eugene.

Study on preservice education

Preservice teacher education is the subject of a 2-year study recently begun by the American Association of Colleges for Teacher Education, which will focus on "the improvement of

professional sequence through selective use of the new media." The study is being undertaken in cooperation with the Office under NDEA, title VII, part B.

The basic purpose of the study is to facilitate the development of multimedia systems of instructional technology for teacher education. From time to time the Association will report to teacher educators on new and promising uses of the media; it will also develop a resource file and a clearinghouse of information.

ETV's need for channels

A plan to meet the foreseeable needs of educational television for the next 10 or 15 years has been prepared by the National Association of Educational Broadcasters. It calls for an increase in the number of the Federal Communication Commission's assignments of ultra-high-frequency channels, from 1,565 to 2,583. The addition of 1,018 channels would not disturb any of the existing channels.

Using electric computers, NAEB has plotted the approximate locations of the 2,583 UHF channels in 1,417 population centers throughout the United States. If the additional assignments are made, NAEB says, education can have the 843 additional channels it needs, and FCC will still have over half of its table of assignments for other broadcast services.

NAEB's plan is set forth in a report to the Office of Education on a survey made under a contract under NDEA, title VII, part B. Last August, under an earlier contract with the Office, NAEB reported in *The Needs of Education for Television Channel Allocations* that as many as 1,197 VHF and UHF channel assignments would be needed for educational television in the next 10 to 15 years.

NAEB is now completing another survey for the Office on still another need in educational television—the need for trained people.

Schedule for exhibit tour

The across-the-Nation tour by the Office-sponsored exhibit on programed instruction and teaching machines has been extended through October. This month the exhibit was shown in Chicago to the North Central Association of Colleges and Secondary Schools and in Des Moines to the Polk County School System. The rest of the schedule is as follows:

Mar. 31–Apr. 2, Oklahoma City, National Education Association (NEA), Department of Elementary School Principals.
Apr. 4–6, Milwaukee, NEA, Department of Classroom Teachers.
Apr. 9–11, Billings.
Apr. 16–17, Laramie, University of Wyoming.
Apr. 19–20, Boulder, University of Colorado.
Apr. 22–25, Denver, NEA Department of Audiovisual Instruction.
Apr. 28–30, Denver, National School Boards Association.
May 3–5, Burlingame, California Teachers Association.
May 7–10, San Jose, Calif., San Jose State College.
May 13–17, Los Angeles, University of California, Los Angeles.
May 27–30, Newton, Mass., Newton Public Schools.
July 20–23, Toledo, University of Toledo.
July 25–27, Bloomington, University of Indiana.
July 31–Aug. 3, Dallas, American Teachers Association.
Aug. 19–23, New York, American Federation of Teachers (tentative).
Sept. 16–20, Detroit, Wayne State University.
Sept. 24–27, Urbana, University of Illinois.
Oct. 1–4, Terre Haute, Indiana State College.
Oct. 21–25, Austin, University of Texas.

The exhibit was prepared and is being managed by the Center for Programed Instruction, Inc., in New York. It is estimated that 20,000 persons have "programed" their way through the exhibit since it opened in Washington last October.

Captioned films

Captioned films for the deaf are being seen by phenomenally increasing numbers. A review of the film screenings during the first 6 months of this fiscal year under the Office's program shows that a total of 124,820 deaf persons of all ages saw at least one of these films, compared to only 28,076 in the corresponding 6 months of 1961.

Other comparisons between these 2 periods only 2 years apart also show how great the increase has been: The total number of bookings rose from 272 to 1,237; the average number of showings per month, from 34 to 201; the average monthly audience, from 3,500 to 20,804.

There are no signs that the demand soon will level off. Every 6 months the total monthly audience approximately doubles; and, in view of the fact that we have only begun to tap the educational potential of the captioned film, we can hardly expect anything else but that the demand for films will continue to grow faster than we can increase our capacity to meet it.

New publications

Among the recent publications about educational uses of the media are the following (all are free):

Current Developments in Educational Television, National Educational Television and Radio Center, 1619 Massachusetts Ave. NW., Washington 6, D.C.

A Guide to Films, Kinescopes and Videotapes for Educational Use, Instructional Television Library Project, 10 Columbus Circle, New York 19, N.Y.

Newer Media in Correspondence Study, Extension Division, University of Texas, Austin, Tex.

San Jose State College Closed Circuit Television Projects, AACTE Bulletin, vol. 13, No. 6, American Association of Colleges for Teacher Education, 1201 Sixteenth St. NW., Washington 6, D.C.

Televised College Courses, by John W. Meany, Fund for the Advancement of Education, 477 Madison Ave., New York 22, N.Y.

Programed Instruction, Today and Tomorrow, by Wilbur Schramm, Fund for the Advancement of Education, 477 Madison Ave., New York 22, N.Y.

W. Robert Bokelman and Elmer C. Deering

Bond sales for higher education: 1962

Using the data tabulated on 1962 bond sales reported in the Daily Bond Buyer, *Dr. Bokelman and Mr. Deering have made a detailed analysis of bond sales by institutions of higher education, States, State building authorities, cities, and State development commissions to finance higher education facilities. Their survey covers bonds reported through January 22, 1963. Any delayed listings reported after that date are not included.*

This is the first Office of Education survey of bonds sales for higher education, though not the first for elementary and secondary schools. Mr. Deering has made similar analyses for public elementary and secondary schools.

IN CALENDAR YEAR 1962 higher education institutions received a total of $569,396,000 from the sale of general obligation and revenue bonds to finance the construction of housing facilities. The buildings, instructional and auxiliary, financed by these funds will be available for use within the next 2 years.

These bonds were sold by both publicly controlled and privately controlled institutions. (In the rest of this report they will be referred to as "public" and "private" institutions.)

Public institutions obtained $442,741,000 of the total and private institutions, $126,655,000. The entire amount of the private institutions' sales was for revenue bonds; that is, bonds that are amortized in large part from the net proceeds of the activity housed in the building financed, such as a dormitory, dining hall, or student recreation center (see next page).

Bond sales of more than $10 million for public institutions were recorded in 11 States and of more than $5 million for private institutions in 8 States:

For public	*Sales (000)*	*For private*	*Sales (000)*
Illinois	$87,800	New York	$17,910
New York	73,487	Massachusetts	10,247
Indiana	28,545	Pennsylvania	9,982
Florida	27,430	North Carolina	7,015
Wisconsin	21,535	Colorado	5,985
Texas	17,571	Ohio	5,860
Michigan	16,385	Illinois	5,675
Alabama	14,316	Florida	5,594
Kentucky	12,469		
Tennessee	11,695		
Ohio	11,135		

The combined total of sales for public and private institutions in 2 States—Illinois ($93,475,000) and New York ($91,397,000) represented almost one-third of the total amount for all 50 States and the District of Columbia.

Funds borrowed from the College Housing Program, Housing and Home Finance Agency, accounted for $275 million of the total. Loans from this program are available to public and private institutions for financing the construction of dormitories, dining halls, students centers, and other auxiliary facilities. During 1962 the interest rate on College Housing bonds was 3⅜ percent from January 1 through June 30 and 3½ percent from July 1 through December 31.

These rates appreciably affected the interest rates on loans for auxiliary facilities since College Housing loans accounted for 70 percent of the funds for auxiliary facilities financed through the issuance of bonds during the year.

The average net interest rate for all bonds was 3.35 percent, ranging from an average of 3.01 percent for general obligation bonds sold by public institutions to

Dr. Bokelman is chief, Business Administration Section, Division of Higher Education. Since he joined the Office staff in 1955, Dr. Bokelman has been responsible for the initiation and completion of the first two of a series of five studies on higher education physical facilities and has made annual studies of higher education salaries, tuition, room rates, board rates, and construction completed.

Mr. Deering is specialist in financing school facilities, Division of Elementary and Secondary Education. He has made annual studies of bond sales for public school purposes for the years 1959–60, 1960–61, and 1961–62 (OE–22009, OE–22009–61, and OE–22009–62). His column School Bonds is a regular feature of School Life.

3.47 percent for revenue bonds sold by public institutions. The average rate for private institutions was 3.44 percent. Bond issues sold to finance academic facilities had a lower average interest rate than those sold to finance auxiliary facilities.

Function of facilities	*Number of sales*	*Amount sold (000)*	*Average net interest cost, percent*
ALL INSTITUTIONS			
All facilities	277	$569,396	3.35
Academic	31	174,947	3.21
Instructional	24	150,375	3.19
Multipurpose [1]	7	24,572	3.34
Auxiliary	246	394,449	3.42
Housing	175	304,313	3.43
Housing and dining	37	48,198	3.32
Dining	3	1,360	3.30
Student center	21	20,378	3.35
Student center and housing	10	20,200	3.60
PUBLIC INSTITUTIONS			
All facilities	138	442,741	3.33
Academic	31	174,947	3.21
Instructional	24	150,375	3.19
Multipurpose [1]	7	24,572	3.34
Auxiliary	107	267,794	3.40
Housing	79	221,559	3.41
Housing and dining	13	22,214	3.19
Dining	0	0	.....
Student center	9	8,601	3.40
Student center and housing	6	15,420	3.64
PRIVATE INSTITUTIONS			
All facilities	139	126,655	3.44
Academic	0	0	0
Instructional	0	0	0
Multipurpose [1]	0	0	0
Auxiliary	139	126,655	3.44
Housing	96	82,754	3.47
Housing and dining	24	25,984	3.42
Dining	3	1,360	3.30
Student center	12	11,777	3.32
Student center and housing	4	4,780	3.45

[1] Funds to be used for construction of more than one academic building.

Public institutions used more than half of their income from bond sales to finance residential and other auxiliary facilities; private schools used all their income to finance auxiliary facilities. The functions of all buildings financed by bond sales are shown below in the percentage distribution of the total amount of the sales:

Function of facilities	*Total, percent*	*Public, percent*	*Private, percent*
All facilities	100.0	77.8	22.2
Academic	30.7	39.5	0
Instructional	26.4	34.0	0
Multipurpose	4.3	5.5	0
Auxiliary	69.3	60.5	100.0
Residential	53.4	50.0	65.3
Residential and dining	8.5	5.0	20.5
Dining	.2	.....	1.1
Student center	3.6	2.0	9.3
Student center and residential	3.6	3.5	3.8

The terms of the bonds—the years to maturity—ranged from 10 years to 50 years. As a rule, short-term bonds sell at lower rates than long-term bonds. This rule holds true here for the shorter term sales: sales for terms of under 25 years (all of them for public institutions) had an average net interest rate of 3.01 percent as compared to an average net interest rate of 3.49 for sales with terms of 25 to 35 years. But it does not hold true for the longer term bonds: all sales for terms of over 35 years had a lower average net interest rate (3.43 percent) than those for terms of 25 to 35 years.

Term	*Number of sales*	*Amount (000)*	*Average net interest cost*
Public and private	277	$569,396	3.35
Under 25 years	26	128,330	3.01
25 to 35 years	50	171,458	3.49
Over 35 years	201	269,608	3.43
Public	138	442,741	3.33
Under 25 years	26	128,330	3.01
25 to 35 years	34	160,041	3.49
Over 35 years	78	154,370	3.42
Private	139	126,655	3.44
Under 25 years	0	.....	.....
25 to 35 years	16	11,417	3.48
Over 35 years	123	115,238	3.44

The higher average interest rate of the 25- to 35-year bonds than for those over 35 years may be explained by the fact that six public issues totaling $55 million averaged a net interest rate of 3.94. The other 44 issues, totaling

$116 million averaged 3.27 net interest rate. If these six issues were removed, the number in the public group would be reduced to 28, the amount to $105 million, and the net interest rate to 3.26. The six issues were sold for these universities or State University Systems: Florida ($25 million at 4.17 interest), Illinois ($2.1 million at 3.73), Iowa ($3.5 million at 3.55), Western Kentucky ($2.8 million at 3.83), Nebraska ($9.5 million at 3.89) and Cornell ($12.5 million at 3.68). Of the 16 private issues in the 25- to 35-year bracket all but 2 were sold to the Housing and Home Finance Agency at 3.50 percent.

The combined sales made by States and building authorities realized a lower average net interest rate than sales made by individual public institutions (3.26 as compared to 3.38) and a higher amount per sale ($15.7 million as compared to $2.0 million). The figures for this comparison appear below:

Item	*Total*	*Building authorities and States*	*Individual public institutions*
Number of sales	138	12	126
Amount sold (000)	$442,741	$188,261	$254,480
Average net interest (%)	3.33	3.26	3.38
Amount per sale (000)	$3,208	$15,688	$2,020

By individual issues, interest rates ranged from a low of 2.34 percent for the sale of $280,000 in general obligation bonds for facilities in Essex County, Mass., to a high of 4.17 percent for the sale of $25 million in revenue bonds by the Florida Development Commission for facilities in the State university system. The Massachusetts bonds were sold on June 11, 1962, and had a term of 10 years, while the Florida bonds were sold on July 12, 1962, and had a term of 28 years. These extremes had little relationship to the interest rates on other sales with one half of the sales bearing interest rates between 3.32 and 3.50 percent and 90 percent of the sales bearing rates between 2.80 and 3.50 percent. The effect of the College Housing loan rate was evident: 133 (48 percent) of the bond sales were at 3.50 percent net interest rate.

In brief, the analyses of bonds sold in 1962 to finance the construction of higher education facilities in public and private institutions reveal these facts:

- Almost $570 million was realized from the sale of general obligation and revenue bonds.
- The College Housing Program, which provides loans for dormitory and other auxiliary facilities, accounted for approximately $275 million of the total.
- Bonds sold by and for public institutions accounted for 77.8 percent of the total; private institutions, 22.2 percent.
- All bond sales by private institutions were revenue bonds for the construction of auxiliary facilities.
- Public institutions used 39.5 percent of the proceeds

Table 1.—Bond sales for higher education: Number, amount, and average net interest cost for all bonds and for all revenue bonds, the 50 States and D.C., calendar year 1962

State	Total bonds			Total revenue bonds		
	No. of sales	Amount sold (000)	Ave. int. (%)	No. of sales	Amount sold (000)	Ave. int. (%)
Total	277	$569,396	3.35	246	$431,071	3.46
Alabama	13	16,501	3.15	11	8,870	3.31
Alaska	2	2,550	3.31	1	1,750	3.34
Arizona	6	7,000	3.28	6	7,000	3.28
Arkansas	7	5,902	3.45	5	4,025	3.48
California	5	13,393	3.14	5	13,393	3.14
Colorado	1	5,985	3.44	1	5,985	3.44
Connecticut	1	950	3.50	1	950	3.50
Delaware	4	4,405	2.80	.....	.....	.....
Florida	6	33,024	3.99	6	33,024	3.99
Georgia	8	9,350	3.35	8	9,350	3.35
Hawaii	.....	.....	.....	.....	.....	.....
Idaho	.....	.....	.....	.....	.....	.....
Illinois	14	93,475	3.12	13	23,475	3.61
Indiana	7	30,595	3.48	6	29,130	3.48
Iowa	4	4,970	3.53	4	4,970	3.53
Kansas	6	5,552	3.38	6	5,552	3.38
Kentucky	4	12,469	3.60	4	12,469	3.60
Louisiana	7	14,169	3.45	7	14,169	3.45
Maine	1	2,600	2.99	.....	.....	.....
Maryland	2	1,210	3.31	2	1,210	3.31
Massachusetts	9	17,877	3.21	8	17,597	3.23
Michigan	9	19,245	3.41	8	16,810	3.44
Minnesota	5	5,745	3.46	5	5,745	3.46
Mississippi	4	1,845	3.37	4	1,845	3.37
Missouri	7	6,065	3.42	6	3,565	3.39
Montana	2	2,042	3.17	2	2,042	3.17
Nebraska	7	11,770	3.81	7	11,770	3.81
Nevada	1	2,012	2.95	1	2,012	2.95
New Hampshire	2	1,390	3.41	2	1,390	3.41
New Jersey	4	3,910	3.29	4	3,910	3.29
New Mexico	3	3,200	3.47	3	3,200	3.47
New York	21	91,397	3.32	16	16,860	3.33
North Carolina	10	11,590	3.40	10	11,590	3.40
North Dakota	1	570	3.50	.....	.....	.....
Ohio	13	16,995	3.56	12	15,295	3.60
Oklahoma	7	4,509	3.19	6	2,709	3.38
Oregon	2	4,131	3.17	1	231	3.50
Pennsylvania	13	9,982	3.48	13	9,982	3.48
Rhode Island	3	3,520	3.22	1	520	3.49
South Carolina	2	2,644	3.50	2	2,644	3.50
South Dakota	5	2,775	3.49	5	2,775	3.49
Tennessee	9	16,252	3.21	7	8,527	3.41
Texas	17	21,293	3.20	15	11,293	3.47
Utah	3	1,655	3.13	3	1,655	3.13
Vermont	1	770	3.50	1	770	3.50
Virginia	7	8,000	3.36	7	8,000	3.36
Washington	4	7,665	3.55	4	7,665	3.55
West Virginia	4	3,277	3.34	4	3,277	3.34
Wisconsin	4	23,170	3.36	3	22,070	3.40
Wyoming	.....	.....	.....	.....	.....	.....
Dist. of Col	.....	.....	.....	.....	.....	.....

Table 2.—Bond sales for higher education: Number, amount, and average interest cost of the bonds, by type of obligation and by type of institutional control, the 50 States and D.C., calendar year 1962

State	Publicly controlled institutions									Privately controlled institutions (all revenue bonds)		
	Total			General obligation			Revenue					
	No. of sales	Amount sold (000)	Ave. int. (%)	No. of sales	Amount sold (000)	Ave. int. (%)	No. of sales	Amount sold (000)	Ave. int. (%)	No. of sales	Amount sold (000)	Ave. int. (%)
Total	138	$442,741	3.33	31	$138,325	3.01	107	$304,416	3.47	139	$126,655	3.44
Alabama	8	14,316	3.10	2	7,631	2.97	6	6,685	3.26	5	2,185	3.48
Alaska	2	2,550	3.31	1	800	3.23	1	1,750	3.34	.....	.....	.....
Arizona	6	7,000	3.28	.....	.....	.....	6	7,000	3.28	.....	.....	.....
Arkansas	7	5,902	3.45	2	1,877	3.41	5	4,025	3.48	.....	.....	.....
California	1	8,750	2.99	.....	.....	.....	1	8,750	2.99	4	4,643	3.42
Colorado	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	5,985	3.44
Connecticut	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	950	3.50
Delaware	4	4,405	2.80	4	4,405	2.80	.....	.....	.....	.....	.....	.....
Florida	2	27,430	4.10	.....	.....	.....	2	27,430	4.10	4	5,594	3.45
Georgia	3	7,170	3.31	.....	.....	.....	3	7,170	3.31	5	2,180	3.46
Hawaii	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Idaho	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois	5	87,800	3.10	1	70,000	2.95	4	17,800	3.67	9	5,675	3.43
Indiana	5	28,545	3.47	1	1,465	3.37	4	27,080	3.48	2	2,050	3.50
Iowa	1	3,500	3.55	.....	.....	.....	1	3,500	3.55	3	1,470	3.49
Kansas	3	4,350	3.38	.....	.....	.....	3	4,350	3.38	3	1,202	3.41
Kentucky	4	12,469	3.60	.....	.....	.....	4	12,469	3.60	.....	.....	.....
Louisiana	6	9,949	3.45	.....	.....	.....	6	9,949	3.45	1	4,220	3.45
Maine	1	2,600	2.99	1	2,600	2.99	.....	.....	.....	.....	.....	.....
Maryland	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1,210	3.31
Massachusetts	3	7,630	3.01	1	280	2.34	2	7,350	3.04	6	10,247	3.37
Michigan	6	16,385	3.41	1	2,435	3.20	5	13,950	3.45	3	2,860	3.41
Minnesota	1	1,250	3.43	.....	.....	.....	1	1,250	3.43	4	4,495	3.47
Mississippi	2	1,150	3.32	.....	.....	.....	2	1,150	3.32	2	695	3.45
Missouri	2	3,180	3.44	1	2,500	3.46	1	680	3.38	5	2,885	3.40
Montana	1	745	3.26	.....	.....	.....	1	745	3.26	1	1,297	3.13
Nebraska	1	9,500	3.89	.....	.....	.....	1	9,500	3.89	6	2,270	3.48
Nevada	1	2,012	2.95	.....	.....	.....	1	2,012	2.95	.....	.....	.....
New Hampshire	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1,390	3.41
New Jersey	1	750	2.88	.....	.....	.....	1	750	2.88	3	3,160	3.39
New Mexico	2	2,825	3.47	.....	.....	.....	2	2,825	3.47	1	375	3.50
New York	8	73,487	3.30	5	14,537	3.50	3	58,950	3.31	13	17,910	3.42
North Carolina	3	4,575	3.34	.....	.....	.....	3	4,575	3.34	7	7,015	3.45
North Dakota	1	570	3.50	1	570	3.50	.....	.....	.....	.....	.....	.....
Ohio	5	11,135	3.61	1	1,700	3.19	4	9,435	3.68	8	5,860	3.47
Oklahoma	5	3,605	3.11	1	1,800	2.89	4	1,805	3.32	2	904	3.50
Oregon	1	3,900	3.15	1	3,900	3.15	.....	.....	.....	1	231	3.50
Pennsylvania	.....	.....	.....	.....	.....	.....	.....	.....	.....	13	9,982	3.48
Rhode Island	3	3,520	3.22	2	3,000	3.17	1	520	3.49	.....	.....	.....
South Carolina	1	2,480	3.50	.....	.....	.....	1	2,480	3.50	1	164	3.50
South Dakota	3	1,920	3.48	.....	.....	.....	3	1,920	3.48	2	855	3.50
Tennessee	6	11,695	3.10	2	7,725	2.99	4	3,970	3.30	3	4,557	3.50
Texas	10	17,571	3.13	2	10,000	2.89	8	7,571	3.45	7	3,722	3.50
Utah	2	1,230	3.01	.....	.....	.....	2	1,230	3.01	1	425	3.50
Vermont	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	770	3.50
Virginia	5	6,890	3.33	.....	.....	.....	5	6,890	3.33	2	1,110	3.50
Washington	2	4,800	3.58	.....	.....	.....	2	4,800	3.58	2	2,865	3.50
West Virginia	2	1,665	3.18	.....	.....	.....	2	1,665	3.18	2	1,612	3.50
Wisconsin	3	21,535	3.35	1	1,100	2.63	2	20,435	3.39	1	1,635	3.50
Wyoming	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
District of Columbia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

from bond sales for academic facilities; 60.5 percent for auxiliary facilities.

- The average net interest rate for all bond sales was 3.35 percent; for public institutions, 3.33 percent; for private institutions, 3.44 percent.
- Illinois reported the largest amount for public institutions, $87.8 million, $70 million of which was from a single sale; New York reported the largest amount for private institutions, $17.9 million.
- Only in Hawaii, Idaho, Wyoming, and the District of Columbia were no bonds sold for either public or private institutions.
- In public institutions bond issues with terms of less than 25 years had an average interest rate of 3.01; those with terms of 25 to 35 years, 3.49, and those with terms of over 35 years, 3.43 percent. In private institutions, all issues were for terms of more than 25 years; the average rates were 3.48 percent for terms of 25 to 35 years and 3.44 percent for terms over 35 years.
- Interest rates for individual issues ranged from a low of 2.34 percent to a high of 4.17 percent; however, one half of all sales had interest rates between 3.32 percent and 3.50 percent, and nine-tenths had rates between 2.80 and 3.50 percent.
- Terms ranged from 10 to 50 years, but 70 percent of the total issues had terms of 38, 39, or 40 years.

SCHOOL BONDS—

Sales, Interest Rates, et cetera

A monthly report by ELMER C. DEERING, *Office of Education specialist on the financing of school facilities.*

IN THE FEBRUARY ELECTIONS this year voters approved $200 million in school bonds—77 percent of the $260 million put before them. (All the returns are not in; the final figure may be higher.) The amount approved is more than $100 million above the February average for the preceding 6 years, and $95 million above the previous record for that month, set in 1961.

February saw more than 150 school bond elections in 28 States, but the new record was due in no small degree to the approval five school districts gave to issues of more than $10 million each: Omaha, Nebr., $25 million; Clark County, Nev., $21 million; Brevard County, Fla., $12 million; Unified No. 1 (Racine, Sturtevant, etc.) in Wisconsin, $10.6 million; and Palo Alto Unified, Calif., $10.5 million. The only other year in which an issue of more than $10 million was approved in February was 1962, and then there was only one of that size.

Average net interest cost of Moody-rated bonds sold on primary market for public schools, by rating only: Annual 1959–60 to 1961–62; monthly, March 1962 to March 1963

Period	Aaa	Aa	A	Baa	Ba	All rated bonds
1959–60	3.26	3.63	3.77	4.21	4.55	3.84
1960–61	2.82	3.34	3.43	3.75	3.97	3.48
1961–62	2.84	3.23	3.19	3.52	3.93	3.27
1962:						
March	2.80	2.99	3.07	3.34	3.89	3.20
April	2.56	2.84	2.85	3.35	3.61	2.94
May	2.56	2.95	3.03	3.34	3.80	3.13
June	2.82	2.83	3.14	3.48	3.93	3.21
July	.....	3.15	3.14	3.61	4.02	3.22
August	.....	3.02	3.08	3.42	3.82	3.17
September	2.83	2.80	3.08	3.47	3.75	3.10
October	.....	2.75	2.96	3.16	3.84	3.02
November	2.38	2.73	2.88	3.17	3.22	2.90
December	2.56	2.73	2.99	3.27	3.86	3.06
1963:						
January	2.53	2.79	3.00	3.28	3.78	3.02
February	2.68	2.72	3.01	3.25	3.73	2.99
March	2.47	2.76	2.93	3.22	3.61	3.00

SOURCE: Sales reported by The Daily Bond Buyer; ratings, by Moody's Investors Service (rated bonds comprise 75–80 percent of all bonds for public school purposes).

Average net interest cost of Moody-rated bonds sold on primary market for public schools, by rating and by term of bond, for the latest quarter and month available

Term of bond	Aaa	Aa	A	Baa	Ba	All rated bonds
	Latest quarter (January–March 1963)					
Under 15 years	2.25	2.38	2.58	2.79	3.10	2.54
15–24 years	2.64	2.82	2.99	3.21	3.53	2.96
25 years and over	.....	2.93	3.02	3.33	3.82	3.15
All terms	2.62	2.78	2.98	3.25	3.69	3.01
	Latest month (March 1963)					
Under 15 years	2.25	2.48	2.56	2.70	.....	2.53
15–24 years	2.63	2.76	2.91	3.20	3.53	2.96
25 years and over	.....	2.87	3.05	3.27	3.75	3.16
All terms	2.47	2.76	2.93	3.22	3.61	3.00

SOURCE: Sales reported by The Daily Bond Buyer; ratings, by Moody's Investors Service (rated bonds comprise 75–80 percent of all bonds for public school purposes).

EDITOR'S NOTE. Beginning next month, School Life's bond report will be expanded to include bonds issued by colleges and universities. W. Robert Bokelman, Division of Higher Education in the Office, will collaborate with Mr. Deering in making this additional information available. The first report will summarize the first quarter of 1963.

AD Minutes Briefly noted--- for the busy School Administrator

Material for this department is prepared by the staff of the School Administration Branch, Division of State and Local School Systems.

A school building is more than a shelter for pupils; it is an educational tool, and because of its purpose, size, cost, and use, it is the most important tool in the whole educational system. So state the Ohio School Boards Association and The Ohio State University in a basic guide outlining the steps for determining the program, estimating size, and selecting architects, sites, and consultants for a new school. The guide, issued as a 34-page booklet, has been sent to 667 affiliated school boards in Ohio for the use of board members, administrators, and citizen groups.

The reorganization of Iowa school districts—from 4,142 to 1,390 in the past 7 years—has led to more efficient use of teachers and administrative officers, the State Department of Public Instruction reports. The number of public four-year high school districts decreased from 808 to 510 during this period. Leonard Feldt of the College of Education, State University of Iowa, reports that average test performance of high school students has consistently risen since 1956, and that this apparent improvement in instruction took place despite an 18 percent rise in high school enrollment.

Reorganization of Kansas school districts was one of the proposals to the State legislature approved by delegates at a recent meeting of the Kansas Association of School Boards. The association proposed the creation of "county school planning boards" to have jurisdiction over "common school territory plus city school districts which are presently under the jurisdiction of the county school superintendent of each county." The planning board would set up standards for unified school districts with not more than one such district in each county, except where a district has more than 750 pupils.

A classroom-in-a-window project was one of the ways in which Akron, Ohio, school officials told the school story to the public. For one week, various classes were conducted in display windows of the citys' two largest department stores. Microphones inside the window and loud speakers outside permitted sidewalk observers to hear all that was taking place. Some 30 different subjects and grade levels were demonstrated in this manner.

How does one identify culturally deprived pupils? Staff members of the Columbus City Schools have attempted to answer this question by uncovering 22 potential indicators of the disadvantaged. After surveying school principals in the inner city, they have identified four objective indicators: mobility of the family, scholastic aptitude, attendance (available from school records), and physical condition of homes (available from census reports). Using these indicators as a base, they have devised a tentative measuring device for determining when a school population has reached the point where additional resources need to be brought to bear, according to Joseph Davis, assistant superintendent of Columbus schools. Davis has suggested that an additional $100, to be spent on each disadvantaged pupil, be included in the State's foundation program.

In an effort to improve service, economize on time, and increase efficiency in carrying on school operations, the Cincinnati Public School System has installed a centralized electronic data processing system in its central office. Programs for the medium scale computer are being planned and written. The complex payroll application, the continuing pupil census, and attendance reports and statistics were transferred to the new system early this year. The conversion of pupil census operation to EDP will eliminate punch card storage space equivalent to approximately 230 file drawers.

New Jersey has the only school we know of, this side of the Iron Curtain, with a complete course in glass blowing technology. The program at Salem County Vocational-Technical Institute has attracted students from the northeastern United States, and from England and Germany. Traditionally, glass blowing has been a family trade. Trained glass blowing technicians are so badly needed that industries have "pirated" students before they finish the course.

Summer schools for migrant children are increasing in number, at least in the nine States whose educational programs for migrants have been surveyed by the Office of Education. During the summer of 1961 the State education agencies of California, Colorado, New Jersey, New York, Ohio, Oregon, and Pennsylvania provided financial assistance for such schools; in 1962 two more—Washington and Wisconsin.

VIRGINIA S. HART

Manpower training in Navajo land

In this article the author describes some of the changes that are taking place in Navajo life, information she acquired while on an official visit to the reservation for the Office of Education.

NORTHWARD from Route 66, beyond Gallup, New Mexico, the road cuts through a stretch of rock-ridged hills that mark the beginning of Navajo land, and leads to Window Rock, eastern gateway to the reservation. The hills are barren and the plains are dry; and there is little evidence, except for the highway, that the 20th century has yet touched this country. Several miles beyond Window Rock there is an $8.5 million steel and timber structure housing some of the most modern sawmill equipment in the world. The sawmill and the work it will provide represent the first major step in an ambitious economic development plan which the Navajo Tribal Council has devised with help from the Area Redevelopment Administration and the Bureau of Indian Affairs. The mill is now in operation at about 50 percent of capacity, turning out more than 100,000 board feet of ponderosa pine each day. A 700-foot conveyor chain, electrically operated, feeds the lumber through such operations as cutting into lengths, grading, planing, and bundling for shipment by Navajo truckers in Navajo trucks.

Like other manpower training projects, the Navajo project was tailored to the special needs of the 200 trainees. Eighty of them had had some experience in sawmill operations, and so were given a refresher course of 180 hours. The remainder were "entry" trainees, and spent 260 hours in on-the-job training and related studies.

When they began about half of the trainees knew little or no English. An instructor and a translator were given 12 hours of preparatory training to insure that the trainees would comprehend the phraseology and methods used. As an introduction to their new work, the trainees first learned something about the Navajo timber resources—such as early efforts to harvest the trees and new plans for exploitation—and principles of sawmill operation. As the course progressed, they learned about logging, green sorting, drying processes, sorting and storage, and manufacturing and shipping. They were assigned to posts on the conveyor chain, and each was given close supervisory instruction in his particular operation. They were familiarized, in general, with all operations in the mill—with the powerhouse, the sorting and roughdry sheds, the planing mill, and the shipping room. They were indoctrinated in safety procedures and in preventive maintenance. By the end of the training course each man had obtained a sense of prideful participation in the new venture in education for economic improvement.

The mill will eventually be manned entirely by Navajo tribesmen who have been trained in the various operations through a program made possible through ARA, and carried out with the help of vocational education services. The two States in which much of the reservation lies—New Mexico and Arizona—have been the instrumental agencies, together with the U.S. Office of Education, in developing training plans and conducting courses. Other groups of trainees will be put through similar programs, with the expectation that the mill within a year will be operating at full capacity with a crew of nearly 400.

The formal opening of the mill on September 6, 1962, was festive, despite torrential rains. Rather than dampening spirits, the rains were greeted as an omen of good luck in that parched country. Navajo men, women, and children from the backlands of the reservation converged on Window Rock for the ceremony, many of them in trucks that had ploughed hub-deep through mud for miles.

The Navajo brass band provided heraldic introduction for members of the Tribal Council, the Governors of New Mexico and Arizona, and other notables. Television cameras and sound equipment, newsmen with tape recorders, and, in the background the hard-hatted sawmill workers lent a contemporary atmosphere to an occasion that also had the air of an old-style tribal festivity.

The real drama, however, is not in the opening of the sawmill, but in the opening of a whole new way of life for the Navajo people, made possible because the tribal council have worked, dreamed, and fought to turn the reservation into a productive area where their people can live in peace, health, and security.

Manuelito, a Navajo leader of long ago, pointed the way to today's tribal goal: "My Grandchildren," he said, "education is the ladder. Take it."

The adjustment of the Navajo people to the changing world around them has been slow and not without pain.

Mrs. Hart is an information officer in the Division of Vocational and Technical Education.

For them it has not been merely a matter of setting aside old methods for new; it has been a process of compromise and adaptation. They are nomads by nature, and are a group so self-identified that they call themselves simply Dineh—The People.

They are in many ways an anachronism. Their genius for assimilating bits of other cultures has probably saved them from extinction. Some time before the arrival of Cortez in Mexico they swept down from the mountains, first to raid and then to settle near the Pueblos, taking to themselves the Pueblo loom. Their artistry appeared first in the skill and beauty of their weaving, later in their graceful silver work, and recently in the work of the growing numbers of painters and architects among them.

Their relations with the "Anglo," represented by the U.S. Government, have not always been smooth though Navajo scouts sometimes served as guides to American forces in winning and holding the Mexican Cession. Between 1863 and 1868 the whole tribe was held captive by the U.S. Army. In 1868, by treaty, they were returned to a barren windswept section of their homeland.

The People once again turned to raising sheep and goats. To perpetuate their flocks, they rarely slaughtered livestock for food and often subsisted instead on berries and roots. The sheep and the loom became the elements of their security.

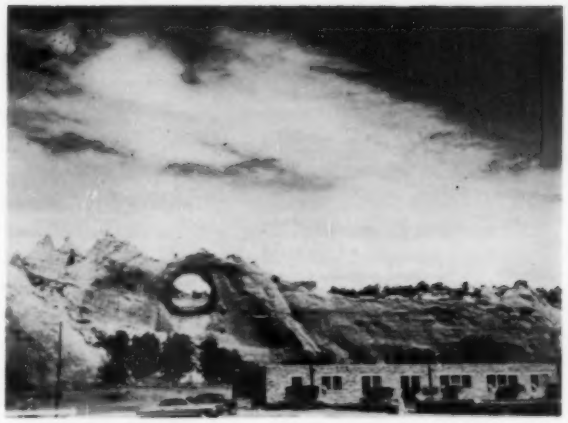
But the sheep and the loom became also their new despair. Although several subsequent land grants extended the reservation to its present 16 million acres, much of it is scrub land, always thirsty for the water that evades the region. Overgrazing and lack of irrigation have brought about such appalling erosion that farming today is impossible on a large scale. These were the conditions that moved Zane Grey to write of the vanishing American.

But The People have refused to vanish. Their numbers have grown from 7,000 in 1868 to about 90,000, now they are increasing faster than the rest of the U.S. population.

Unlike most other American Indians, who have deserted longhouses and tepees for modern homes, most of the Navajo still live in their traditional windowless mud and log hogans, in scattered parts of the reservation, in the shadows of the sacred places of their forebears.

They have retained their oneness with nature and their oneness with themselves. All of The People speak the Navajo tongue, a complex and word-rich Athabascan dialect, so insular that it was used by the Allies in World War II for coded messages.

Indeed, it was the war that moved The People into a new phase of their history. Railroads and war industries recruited more than 15,000 Navajo workers. Several thousand more enlisted in the fighting forces. When the war ended, The People were ready to span the centuries.



Against the background of Window Rock, evidence of both the new and the old: Top, the headquarters for the Bureau of Indian Affairs; bottom, the building where the tribal council meets.

A fortuitous combination of events helped them to take the first steps: oil was discovered on their lands. The tribe came into millions of dollars in sale of reserve rights and now enjoys millions in royalties. Subsequently, natural gas and uranium are providing further income.

In 1946 Congress authorized a settlement of Indian land claims, and the Navajo Tribe is now engaged in proving claims to vast new holdings. In 1950 Congress authorized appropriations of $88 million over a 10-year period for Navajo and Hopi rehabilitation. Health and education are two of the chief targets of the program.

The Navajo tribe, for so many years a loose association of families, has, as a result, attained a sense of awareness, and with it a new kind of unity, particularly on this issue of education. Although the United States early committed itself to provide schooling for the tribe, The People for generations resisted sending their children to live away from the family group. But after World War II the education explosion began, and now about 33,000 Navajo

boys and girls are attending schools on and off the reservation. School buses serve roughly one-third of the school-age population: the rest go to boarding schools.

But the families in the hinterlands are a concern of the tribal leaders. To train them for work, and for life in the modern world, has become a first goal of the tribal leaders.

The People's social structure has always been democratic, and today's system of tribal government has evolved naturally. Assets are owned by the tribe as a whole and are managed by the Tribal Council. Part of the Council's function is to help relocate Navajo families (either on or off the reservation). The government has operated so effectively in recent years that many young Navajos return to the reservation after completing college.

There is no highest chief of tribe. The leaders, elected for 4-year terms, depend for their authority largely on reputation for wisdom. Because of the high illiteracy rate, the ballots are pictorial. At present the Tribal Council has 74 members, several of whom are women.

With the revenues from its mineral resources, the tribe has been able to set up its own police force, courts, businesses, and industries, all functions long performed by the Bureau of Indian Affairs. Its next aim is creation of its own vocational schools.

With this organization, Navajo Land was ripe for an Overall Economic Development Plan and job training under ARA, and is looking to further training under the new Manpower Development and Training Act (MDTA).

Shortly after passage of the Area Redevelopment Act, the Council voted a resolution seeking technical assistance and grants in aid to enable the tribe to carry out its economic development plan.

Their needs, and their plans, are distinctive. Economic decline is not a problem in the Navajo redevelopment area in the same sense that the term applies to other areas of the United States. Rather, the problem is one of combating the results of underdevelopment and underemployment to establish an economy capable of supporting the population at an acceptable level. As many as 10,000 Navajo families are in need of a permanent source of income. The poverty is most graphically illustrated by the fact that, in 1960, unearned cash income (welfare, surplus commodities) was nearly double the income from livestock, which was once the primary source of income.

The Overall Economic Development Plan takes into account the natural resources owned by the tribe; the potentialities for developing enterprises, using oil revenues; the educational needs of The People; and their need for gainful employment to revive their independence of spirit.

The plan has three major directions: Mineral development, water development, and recreational area development to attract tourists. In all three directions, the basic approach is to educate and train the Navajo people, so that all construction, operation, maintenance, expansion, and, eventually, management of their enterprises will be their own doing.

During my visit I talked with some of the council members who are guiding the development effort: Paul Jones, the chairman, Scott Preston, vice chairman; J. Maurice McCabe, executive secretary; Manuel Begay, legislative secretary; and Ned Hatathli, director of resources.

It was Ned Hatathli who told me that the greatest dream is to see a network of vocational-technical schools across the Navajo lands.

"We need vocational education in all fields," he said. "We need trained carpenters and bricklayers and machine operators and auto mechanics. We need typists and bookkeepers. We need practical nurses and nurse aides. We need teachers to show the Navajo women how to balance a meal and balance a budget.

"We even need training for farmers, strange as it seems," Mr. Hatathli added, "because we are going to irrigate 110,000—perhaps more—acres of land and there will have to be irrigation farmers to work it."

Meanwhile, in the absence of adequate vocational education opportunities for enough of their young people, the Tribal Council has established a $10 million scholarship fund, the annual interest on which permits about 400 Navajo high school graduates each year to pay their expenses at the State colleges and universities in New Mexico and Arizona.

The Council is also working on several proposals for additional training programs in several occupations under the Area Redevelopment Act and the Manpower Development and Training Act.

Over the past decade, under the Council's guidance, the tribe has undertaken many forward-looking projects on its own, relying upon contractual services of outside consultants for technical and managerial direction.

The first undertaking was the creation of Navajo Forest Products Industries, an enterprise which has as its function the multipurpose development of the forest reserves. An aerial survey was made of the 475,000 acres of timber about 10 years ago, and resulting analyses revealed that more than 34-million feet could be harvested annually on a sustained yield basis.

The new sawmill, supplanting a $50,000 mill erected in 1939, is the main feature of the Navajo Forest Products Industries. The sale of lumber and byproducts (laminated boards, flakedboard, chips for pulpmills, "hog fuel," and similar derivations) is expected to create employment for 800 Navajos in the future.

A comparably ambitious enterprise has been the range

and water development program, formerly operated by the U.S. Government. Deep well development between 1958 and 1961 cost the tribe nearly $5 million, and a shallow well and spring development totaled nearly $1 million. The construction of a dam on the San Juan River, as part of the Colorado River Project of the U.S. Bureau of Reclamation, will eventually provide irrigation for about 110,000 acres of arid land. A large-scale irrigation system is part of the overall economic plan.

About 60,000 tourists were lured to Navajo Land in 1960 as a result of the first efforts to make the scenic wonderlands more accessible and appealing to the tenderfoot. Monument Valley, Mummy Cave in Canyon del Muerto, trout-filled Wheatfield Lake and its feed-streams, Window Rock and Shiprock, and other potential tourist attractions have been made attractive to tourists with passable roadways and camp sites; restaurants and motels are to come. Major highways will also eventually traverse the reservation.

All these enterprises will benefit the Navajo people in two ways: Income to the tribe will increase with increasing ability to produce goods and services; and income to individual families will increase as employment opportunities open up through expansion of enterprises.

For the Navajo people's own pleasure and direct usefulness, such other projects as these have been undertaken: A ram-herd service, to provide high-quality rams for breeding, on a rental basis to individual stockmen; purchase of two cattle ranches to relieve grazing on the reservation; an organized farm training program on a 1,200-acre demonstration farm; a youth camp; promotion of 4–H Clubs and Scouting; and the scholarship fund.

Meanwhile, vocational training programs, made possible through such legislation as the Area Redevelopment Act and the Manpower Development and Training Act, give the Office of Education staff a welcome opportunity to extend whatever consultive services the Navajo people may request in putting their manpower reserve into action.

College and University Programs for the Preparation of Teachers of Exceptional Children

ROMAINE P. MACKIE, MARGARET A. NEUBER, AND PATRICIA P. HUNTER

THIS IS A PRELIMINARY REPORT of some of the findings in an Office of Education study of college and university programs for the preparation of teachers of exceptional children. The study includes those institutions of higher learning which during 1961–62 gave at least a minimum sequence* of specialized professional preparation for teachers of exceptional children; it also includes programs for other special educators such as supervisors and administrators.

Dr. Mackie, chief, Exceptional Children and Youth, Office of Education, is director of the Office's current study on college and university programs for the preparation of teachers of exceptional children. Her coauthors, Miss Neuber and Mrs. Hunter, are consultant and specialist, respectively, in the Office's program for the education of exceptional children. Their report here is the first release of information from the study; more details will be published from time to time, and a bulletin will carry the full report. Collaborators in the study are Lloyd M. Dunn, chairman, Department of Special Education, George Peabody College for Teachers, and Vivian E. Scott, formerly a specialist in the Office.

Returns from the study show that the range of programs was wide: some institutions concentrated on only one area of specialization, for example, on education of the mentally retarded; others gave sequences in as many as 9 or 10 areas.

Preliminary data show a number of interesting facts. Among them are these:

- The number of institutions giving a minimum sequence in one or more areas of special education during academic year 1961–62 was 225, compared to only 122 eight years earlier, in 1953–54, when the Office made a similar study.
- The largest number of these sequences in 1961–62 were given in mental retardation and speech and hearing impairment.

* The questionnaire sent to the institutions used this definition: "For purposes of this study, a program of professional preparation in a single area of exceptionality must include a *minimum sequence of at least* 3 courses (9 semester hours or equivalent) of specialized preparation including (a) a study of physical, mental, and/or emotional characteristics of children with the particular condition under consideration, (b) a study of the specialized teaching methods and curriculum adjustments needed in the area, (c) observation and student teaching (or practicum) in the specialized area."

• The 1961–62 programs, when compared with offerings 8 years earlier, showed that the highest *percentages* of increase were for the blind, the socially maladjusted and emotionally disturbed, and the gifted.

• In 1961–62 twice as many institutions as in 1953–54 gave minimum sequences for the mentally retarded, the deaf, and the crippled.

• During the academic year 1961–62 institutions gave about 475 of these sequences; during the summer of 1961, about 210.

The following list names the colleges and universities giving minimum sequences in the various areas of specialization and tells whether the courses were graduate or undergraduate and whether they were given in the regular academic year or in the summer session.

ALABAMA

Alabama College, Montevallo
Speech impaired. Regular, undergraduate, graduate

Auburn University, Auburn
Hard of hearing. Regular, undergraduate
Speech impaired. Regular and summer, undergraduate
Mentally retarded. Regular, undergraduate, graduate; summer, undergraduate

University of Alabama, University
Hard of hearing. Regular, graduate
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Summer, graduate

ARIZONA

Arizona State University, Tempe
Speech impaired. Regular, undergraduate

University of Arizona, Tucson
Deaf. Regular, undergraduate, graduate
Speech impaired. Regular, graduate
Mentally retarded. Regular, undergraduate, graduate
Gifted. Regular and summer, graduate

ARKANSAS

Arkansas State Teachers College, Conway
Mentally retarded. Summer, undergraduate and graduate

Harding College, Searcy
Speech impaired. Regular, undergraduate

University of Arkansas, Fayetteville
Deaf. Regular and summer, undergraduate
Speech impaired. Regular, undergraduate, graduate

CALIFORNIA

Chapman College, Orange
Mentally retarded. Regular, graduate

Chico State College, Chico
Hard of hearing. Regular, graduate
Speech impaired. Regular and summer, undergraduate

College of the Holy Names, Oakland
Speech impaired. Regular, undergraduate

University of the Pacific, Stockton
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

Fresno State College, Fresno
Speech impaired. Regular and summer, undergraduate

Humboldt State College, Arcata
Speech impaired. Regular, undergraduate, graduate

La Sierra College, Arlington
Speech impaired. Regular, undergraduate

La Verne College, La Verne
Speech impaired. Regular, undergraduate

Long Beach State College, Long Beach
Hard of hearing. Regular, undergraduate, graduate; summer undergraduate
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate

Los Angeles State College of Applied Arts and Sciences, Los Angeles
Blind. Regular and summer, undergraduate, graduate
Partially seeing. Regular and summer, undergraduate, graduate
Deaf. Regular, undergraduate, graduate; summer, graduate
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Orange County State College, Fullerton
Speech impaired. Regular, undergraduate

Sacramento State College, Sacramento
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate

San Diego State College, San Diego
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

San Fernando Valley State College, Northridge
Deaf. Regular, graduate
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate

San Francisco State College, San Francisco
Blind. Regular, graduate
Partially seeing. Regular, graduate
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular, graduate
Mentally retarded. Regular, graduate

San Jose State College, San Jose
Speech impaired. Regular, undergraduate; summer, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

Stanford University, Palo Alto
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate; summer, graduate

University of California—Los Angeles
Speech impaired. Regular, undergraduate, graduate

University of California—Santa Barbara, Goleta
Speech impaired. Regular and summer, undergraduate

University of Redlands, Redlands
Speech impaired. Regular, undergraduate, graduate

University of Southern California, Los Angeles
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

Whittier College, Whittier
Speech impaired. Summer, undergraduate, graduate

COLORADO

Colorado State College, Greeley
Blind. Regular, undergraduate, graduate
Deaf. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Colorado State University, Fort Collins
Speech impaired. Regular, undergraduate, graduate

University of Colorado, Boulder
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

University of Denver, Denver
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate; summer, graduate
Gifted. Regular, undergraduate, graduate

CONNECTICUT

Southern Connecticut State College, New Haven
Hard of hearing. Regular, graduate
Speech impaired. Regular, graduate
Mentally retarded. Regular, undergraduate, graduate; summer, graduate

University of Connecticut, Storrs
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

DISTRICT OF COLUMBIA

Catholic University of America
Speech impaired. Regular, undergraduate, graduate; summer, graduate

District of Columbia Teachers College
Speech impaired. Regular, undergraduate

Gallaudet College
Deaf. Regular and summer, graduate

George Washington University
Speech impaired. Regular, undergraduate, graduate

FLORIDA

Florida Agricultural and Mechanical University, Tallahassee
Speech impaired. Regular, undergraduate
Mentally retarded. Regular, undergraduate

Florida State University, Tallahassee
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate; summer, graduate
Gifted. Summer, graduate

University of Florida, Gainesville
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Socially maladjusted. Regular, graduate

University of Miami, Coral Gables
Speech impaired. Regular, undergraduate

GEORGIA

Emory University, Atlanta
Deaf. Regular, graduate
Hard of hearing. Regular, graduate
Speech impaired. Regular, graduate

University of Georgia, Athens
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

HAWAII

University of Hawaii, Honolulu
Speech impaired. Regular, undergraduate, graduate

IDAHO

Idaho State College, Pocatello
Speech impaired. Regular, undergraduate, graduate

ILLINOIS

Augustana College, Rock Island
Hard of hearing. Regular, undergraduate
Speech impaired. Regular, undergraduate

Bradley University, Peoria
Speech impaired. Regular and summer, undergraduate, graduate

Chicago Teachers College—North Side Campus, Chicago
Deaf. Summer, graduate
Speech impaired. Summer, graduate
Mentally retarded. Summer, graduate

College of St. Francis, Joliet
Speech impaired. Regular, undergraduate

DePaul University, Chicago
Deaf. Regular, undergraduate, graduate

Eastern Illinois University, Charleston
Speech impaired. Regular, undergraduate, graduate

Elmhurst College, Elmhurst
Speech impaired. Regular, undergraduate

Illinois State Normal, Normal
Blind. Regular and summer, undergraduate, graduate
Partially seeing. Regular and summer, undergraduate, graduate
Deaf. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

MacMurray College, Jacksonville
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

Mundelein College, Chicago
Speech impaired. Regular, undergraduate

Northern Illinois University, De Kalb
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate

Northwestern University, Evanston
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

Rockford College, Rockford
Speech impaired. Regular, undergraduate, graduate

Southern Illinois University, Carbondale
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Southern Illinois University, Edwardsville
Mentally retarded. Regular, undergraduate, graduate; summer, graduate

University of Chicago, Chicago
Speech. Regular, graduate

University of Illinois, Urbana
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate; summer, graduate

Western Illinois University, Macomb
Speech impaired. Regular, undergraduate

INDIANA

Ball State Teachers College, Muncie
Deaf. Summer, undergraduate, graduate
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

Indiana State College, Terre Haute
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular, undergraduate
Mentally retarded. Regular and summer, undergraduate, graduate
Gifted. Summer, undergraduate, graduate

Indiana University, Bloomington
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

Purdue University, Lafayette
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

St. Francis College, Fort Wayne
Mentally retarded. Regular and summer, graduate

IOWA

Grinnell College, Grinnell
Speech impaired. Regular, undergraduate

State College of Iowa, Cedar Falls
Speech impaired. Regular, undergraduate
Mentally retarded. Regular and summer, undergraduate, graduate
Gifted. Regular and summer, undergraduate, graduate

State University of Iowa, Iowa City
Crippled. Regular and summer, graduate
Emotionally disturbed. Regular, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

KANSAS

Fort Hays Kansas State College, Hays
Speech impaired. Regular, undergraduate, graduate

Kansas State Teachers College, Emporia
Mentally retarded. Summer, undergraduate, graduate

Kansas State University of Agriculture and Applied Science, Manhattan
Speech impaired. Regular, undergraduate, graduate

University of Kansas, Lawrence
Deaf. Regular, graduate
Hard of hearing. Regular, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular, graduate
Emotionally disturbed. Regular, graduate
Mentally retarded. Regular, graduate

University of Wichita, Wichita
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular, undergraduate, graduate

KENTUCKY

Nazareth College, Nazareth
Speech impaired. Regular, undergraduate

University of Kentucky, Lexington
Hard of hearing. Summer, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate

University of Louisville, Louisville
Mentally retarded. Summer, undergraduate, graduate

Ursuline College, Louisville
Speech impaired. Regular, undergraduate

LOUISIANA

Grambling College, Grambling
Hard of hearing. Regular, undergraduate
Speech impaired. Regular and summer, undergraduate

Louisiana State University and Agricultural and Mechanical College, Baton Rouge
Speech impaired. Regular, undergraduate, graduate

St. Mary's Dominican College, New Orleans
Speech impaired. Regular, undergraduate

Southern University and Agricultural and Mechanical College, Baton Rouge
Hard of hearing. Regular, undergraduate
Speech impaired. Regular, undergraduate
Mentally retarded. Regular, undergraduate

University of Southwest Louisiana, Lafayette
Hard of hearing. Regular, undergraduate
Speech impaired. Regular, undergraduate

Tulane University of Louisiana, New Orleans
Hard of hearing. Regular and summer, graduate
Speech impaired. Summer, graduate

MAINE

Farmington State Teachers College, Farmington
Mentally retarded. Regular, undergraduate

MARYLAND

University of Maryland, Baltimore
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate
Gifted. Regular, undergraduate, graduate

MASSACHUSETTS

Boston College, Chestnut Hill
Mentally retarded. Regular, undergraduate, graduate

Boston University, Boston
Blind. Regular, graduate
Deaf. Regular, graduate
Hard of hearing. Regular, graduate
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduaet, graduate

Emerson College, Boston
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

State College at Fitchburg, Fitchburg
Mentally retarded. Regular, undergraduate, graduate

Smith College, Northampton
Deaf. Regular, graduate

Tufts University, Medford
Crippled. Regular, undergraduate, graduate

University of Massachusetts, Amhurst
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

MICHIGAN

Central Michigan University, Mt. Pleasant
Emotionally disturbed. Regular, undergraduate
Mentally retarded. Regular, undergraduate, graduate

Eastern Michigan University, Ypsilanti
Blind. Regular, undergraduate, graduate
Deaf. Regular and summer, undergraduate, graduate
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular, undergraduate graduate
Crippled. Regular and summer, undergraduate, graduate
Emotionally disturbed. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Marygrove College, Detroit
Speech impaired. Regular, undergraduate

Michigan State University of Agriculture and Applied Science, East Lansing
Blind. Regular, undergraduate, graduate
Partially seeing. Regular, undergraduate, graduate
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular, undergraduate, graduate
Special health problems. Regular, undergraduate, graduate
Socially maladjusted. Regular, undergraduate, graduate
Emotionally disturbed. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

Northern Michigan College, Marquette
Speech impaired. Regular, undergraduate

University of Michigan, Ann Arbor
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular, undergraduate, graduate
Socially maladjusted. Regular and summer, undergraduate, graduate
Emotionally disturbed. Regular, undergraduate, graduate

Wayne State University, Detroit
Blind. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular, undergraduate, graduate
Emotionally disturbed. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

Western Michigan University, Kalamazoo
Blind. Regular, undergraduate, graduate
Deaf. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate
Crippled. Regular, undergraduate, graduate
Emotionally disturbed. Regular, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

MINNESOTA

Mankato State College, Mankato
Speech impaired. Regular and summer, undergraduate
Mentally retarded. Regular, undergraduate, graduate

Moorhead State College, Moorhead
Speech impaired. Regular undergraduate
Mentally retarded. Regular, undergraduate

St. Cloud State College, St. Cloud
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

University of Minnesota, Minneapolis
Blind. Regular and summer, graduate
Partially seeing. Regular and summer, graduate
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular, undergraduate, graduate
Socially maladjusted. Regular, graduate
Emotionally disturbed. Regular, graduate
Mentally retarded. Regular and summer, undergraduate, graduate
Gifted. Regular, undergraduate, graduate

MISSISSIPPI

University of Southern Mississippi, Hattiesburg
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

Mississippi State College for Women, Columbus
Speech impaired. Regular, undergraduate

University of Mississippi, University
Speech impaired. Regular, undergraduate, graduate

MISSOURI

Central Missouri State College, Warrensburg
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Culver Stockton College, Canton
Speech impaired. Regular, undergraduate

Fontbonne College, St. Louis
Hard of hearing. Regular, undergraduate
Speech impaired. Regular, undergraduate

St. Louis University, St. Louis
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Southeast Missouri State College, Cape Girardeau
Speech impaired. Regular and summer, undergraduate

University of Missouri, Columbia
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

Washington University, St. Louis
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate

William Jewell College, Liberty
Speech impaired. Regular, undergraduate

MONTANA

East Montana College of Education, Billings
Speech impaired. Regular and summer, undergraduate

Montana State University, Missoula
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

NEBRASKA

Municipal University of Omaha
Deaf. Regular, undergraduate, graduate

University of Nebraska, Lincoln
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate
Gifted. Regular and summer, undergraduate, graduate

NEVADA

University of Nevada, Reno
Speech impaired. Regular, undergraduate, graduate

NEW HAMPSHIRE

Keene Teachers College, Keene
Deaf. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

NEW JERSEY

Montclair State College, Upper Montclair
Speech impaired. Regular, undergraduate, graduate

Newark State College, Union
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

Trenton State College, Trenton
Mentally retarded. Regular, graduate
Speech impaired. Regular, undergraduate, graduate

NEW MEXICO

Eastern New Mexico University, Portales
Speech impaired. Regular, undergraduate, graduate

University of New Mexico, Albuquerque
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

NEW YORK

Adelphi College, Garden City
Hard of hearing. Regular, graduate
Speech impaired. Regular, graduate

Brooklyn College, Brooklyn
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, graduate

City College of City of New York, New York
Mentally retarded. Regular, undergraduate, graduate

Columbia University, New York
Deaf. Regular, graduate
Hard of hearing. Regular, graduate
Speech impaired. Regular and summer, graduate
Crippled. Regular, undergraduate, graduate
Emotionally disturbed. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate; summer, graduate
Gifted. Regular, graduate

Elmira College, Elmira
Speech impaired. Regular, undergraduate

Hofstra College, Hempstead
Speech impaired. Regular, undergraduate

Hunter College of the City of New York, New York
Blind. Regular and summer, graduate
Partially seeing. Regular, graduate
Deaf. Regular and summer, graduate
Hard of hearing. Regular and summer, graduate
Speech impaired. Regular, graduate
Crippled. Regular, graduate
Special health problems. Regular, graduate
Mentally retarded. Summer, graduate

Long Island University, Brooklyn
Mentally retarded. Regular, graduate

Nazareth College, Rochester
Speech impaired. Regular, undergraduate

New York University, New York
Speech impaired. Regular, undergraduate, graduate
Crippled. Regular, graduate
Mentally retarded. Regular, graduate

Queens College of City of New York, New York
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate

State University of New York, College at Albany, Albany
Speech impaired. Regular, undergraduate, graduate

State University of New York, College at Buffalo, Buffalo
Speech impaired. Regular, undergraduate, graduate
Crippled. Regular, undergraduate
Mentally retarded. Regular, undergraduate, graduate

State University of New York, College at Geneseo, Geneseo
Hard of hearing. Regular and summer, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Summer, undergraduate, graduate

Syracuse University, Syracuse
Blind. Summer, graduate
Partially seeing. Summer, graduate
Deaf. Regular and summer, undergraduate, graduate
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

State University of New York at Buffalo, Buffalo
Deaf. Regular, graduate
Speech impaired. Regular, undergraduate, graduate

University of Rochester, Rochester
Mentally retarded. Regular and summer, graduate

Yeshiva University, New York
Crippled. Regular, graduate
Socially maladjusted. Regular, graduate
Mentally retarded. Regular, graduate

NORTH CAROLINA

Appalachian State College, Bonne
Deaf. Regular, undergraduate

East Carolina College, Greenville
Speech impaired. Regular, undergraduate; summer, undergraduate, graduate

Greensboro College, Greensboro
Speech impaired. Regular, undergraduate
Mentally retarded. Regular, undergraduate

Lenoir Rhyne College, Hickory
Deaf. Regular, undergraduate
Hard of hearing. Regular, undergraduate

Western Carolina College, Cullowhee
Speech impaired. Summer, undergraduate, graduate
Mentally retarded. Summer, undergraduate, graduate
Gifted. Summer, undergraduate, graduate

NORTH DAKOTA

North Dakota State University, Fargo
Speech impaired. Regular and summer, undergraduate, graduate

State Teachers College, Minot
Hard of hearing. Regular and summer, undergraduate
Speech impaired. Regular and summer, undergraduate

University of North Dakota, Grand Forks
Speech impaired. Regular and summer, undergraduate, graduate

OHIO

Bowling Green State University, Bowling Green
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

Kent State University, Kent
Deaf. Regular and summer, undergraduate, graduate
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate
Gifted. Summer, undergraduate, graduate

Miami University, Oxford
Hard of hearing. Regular, undergraduate
Speech impaired. Regular, undergraduate, graduate

Ohio State University, Columbus
Speech impaired. Regular, undergraduate
Socially maladjusted. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Ohio University, Athens
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

University of Cincinnati, Cincinnati
Speech impaired. Regular, undergraduate
Mentally retarded. Regular, undergraduate

Western Reserve University, Cleveland
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

OKLAHOMA

Central State College, Edmond
Mentally retarded. Regular, undergraduate, graduate

Northeastern State College, Tahlequah
Hard of hearing. Regular, undergraduate
Speech impaired. Regular, undergraduate

Oklahoma College for Women, Chickasha
Deaf. Regular and summer, undergraduate
Hard of hearing. Regular and summer, undergraduate
Speech impaired. Regular and summer, undergraduate

Oklahoma State University of Agriculture and Applied Sciences, Stillwater
Hard of hearing. Regular, undergraduate
Speech impaired. Regular and summer, undergraduate, graduate

Phillips University, Enid
Hard of hearing. Regular, undergraduate
Speech impaired. Summer, undergraduate

University of Oklahoma, Norman
Mentally retarded. Regular, undergraduate, graduate

University of Tulsa, Tulsa
Speech impaired. Regular, undergraduate

OREGON

General Extension Division, Portland
Speech impaired. Regular, undergraduate, graduate; summer, graduate
Mentally retarded. Summer, undergraduate, graduate

Oregon College of Education, Monmouth
Deaf. Summer, graduate
Speech impaired. Regular and summer, graduate

Oregon State University, Corvallis
Speech impaired. Regular, undergraduate, graduate

Pacific University, Forest Grove
Speech impaired. Regular, undergraduate; summer, undergraduate, graduate

Southern Oregon College, Ashland
Speech impaired. Regular, undergraduate

University of Oregon, Eugene
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular, graduate; summer, undergraduate, graduate
Gifted. Regular, graduate

PENNSYLVANIA

Marywood College, Scranton
Mentally retarded. Regular, undergraduate, graduate

Mount Mercy College, Pittsburgh
Speech impaired. Regular, undergraduate

Pennsylvania State University, State College
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Crippled. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate
Gifted. Regular, undergraduate, graduate

Bloomsburg State College, Bloomsburg
Hard of hearing. Regular, undergraduate
Speech impaired. Regular, undergraduate

California State College, California
Hard of hearing. Regular, undergraduate
Speech impaired. Regular, undergraduate

Edinboro State College, Edinboro
Speech impaired. Regular, undergraduate
Mentally retarded. Regular, undergraduate

Indiana State College, Indiana
Hard of hearing. Regular, undergraduate
Speech impaired. Regular, undergraduate
Mentally retarded. Summer, undergraduate

Temple University, Philadelphia
Speech impaired. Regular and summer, undergraduate, graduate

University of Pittsburgh, Pittsburgh
Hard of hearing. Regular and summer, graduate
Speech impaired. Regular and summer, graduate
Partially seeing. Summer, graduate
Crippled. Summer, graduate
Mentally retarded. Regular and summer, graduate
Gifted. Regular and summer, graduate
Deaf. Summer, graduate

SOUTH CAROLINA

Converse College, Spartanburg
Deaf. Regular, undergraduate

SOUTH DAKOTA

Augustana College, Sioux Falls
Deaf. Regular, undergraduate

Northern State Teachers College, Aberdeen
Blind. Regular, undergraduate, graduate

South Dakota State College of Agriculture and Mechanic Arts, Brooks
Speech impaired. Regular, undergraduate

State University of South Dakota, Vermillion
Speech impaired. Regular, undergraduate, graduate

TENNESSEE

East Tennessee State College, Johnson City
Speech impaired. Regular and summer, undergraduate
Mentally retarded. Summer, undergraduate, graduate

George Peabody College, Nashville
Blind. Regular and summer, undergraduate, graduate
Partially sighted. Regular and summer, undergraduate, graduate
Deaf. Regular and summer, undergraduate, graduate
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate.
Crippled. Summer, undergraduate, graduate

Emotionally disturbed. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate
Gifted. Regular, graduate

Memphis State University, Memphis
Crippled. Regular and summer, undergraduate, graduate

University of Chattanooga, Chattanooga
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

University of Tennessee, Knoxville
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Vanderbilt University, Nashville
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate

TEXAS

Abilene Christian College, Abilene
Hard of hearing. Regular, undergraduate
Speech impaired. Regular and summer, undergraduate

Baylor University, Waco
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate

East Texas State College, Commerce
Speech impaired. Regular, undergraduate, graduate

Hardin-Simmons University, Abilene
Speech impaired. Regular, undergraduate

Incarnate Word College, San Antonio
Mentally retarded. Regular, undergraduate

North Texas State University, Denton
Speech impaired. Regular, undergraduate, graduate

Our Lady of the Lake College, San Antonio
Speech impaired. Regular, undergraduate, graduate

Southern Methodist University, Dallas
Speech impaired. Regular, undergraduate

Southwest Texas State College, San Marcos
Hard of hearing. Regular, undergraduate, graduate; summer, undergraduate
Speech impaired. Regular, undergraduate, graduate; summer, undergraduate
Mentally retarded. Regular and summer, undergraduate, graduate

Texas Christian University, Fort Worth
Speech impaired. Regular, undergraduate

Texas Technological College, Lubbock
Speech impaired. Regular, undergraduate, graduate

Texas Woman's University, Denton
Speech impaired. Regular, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Trinity University, San Antonio
Deaf. Regular, undergraduate

University of Houston, Houston
Blind. Regular, undergraduate, graduate
Partially seeing. Regular, undergraduate, graduate
Deaf. Regular, undergraduate, graduate
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate
Crippled. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

University of Texas, Austin
Deaf. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate
Crippled. Summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

West Texas State College, Canyon
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular, undergraduate, graduate

UTAH

Brigham Young University, Provo
Hard of hearing. Regular, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate

University of Utah, Salt Lake City
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular and summer, undergraduate, graduate

Utah State University of Agricultural and Applied Sciences, Logan
Speech impaired. Regular and summer, undergraduate
Mentally retarded. Regular and summer, undergraduate, graduate

VIRGINIA

Norfolk College of William and Mary, Norfolk
Speech impaired. Regular, undergraduate

Hampton Institute, Hampton
Speech impaired. Regular, undergraduate

University of Virginia, Charlottesville
Speech impaired. Regular, undergraduate, graduate
Crippled. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate
Gifted. Regular, graduate

WASHINGTON

Central Washington State College, Ellensburg
Speech impaired. Regular, undergraduate, graduate

University of Washington, Seattle
Deaf. Regular and summer, undergraduate, graduate
Hard of hearing. Regular and summer, undergraduate, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Emotionally disturbed. Summer, graduate
Mentally retarded. Summer, graduate
Gifted. Summer, undergraduate, graduate

Washington State University, Pullman
Speech impaired. Regular, undergraduate, graduate

Western Washington State College, Bellingham
Speech impaired. Regular, undergraduate

WEST VIRGINIA

Marshall University, Huntington
Speech impaired. Regular, undergraduate

WISCONSIN

Cardinal Stritch College, Milwaukee
Mentally retarded. Summer, graduate

Dominican College, Racine
Speech impaired. Regular, undergraduate

Marquette University, Milwaukee
Speech impaired. Regular, undergraduate, graduate

University of Wisconsin, Madison
Hard of hearing. Regular, graduate
Speech impaired. Regular and summer, undergraduate, graduate
Mentally retarded. Regular, graduate

Wisconsin State College at Eau Claire
Mentally retarded. Regular, undergraduate

University of Wisconsin, Milwaukee.
Deaf. Regular, undergraduate, graduate
Speech. Regular, undergraduate, graduate
Mentally retarded. Regular, undergraduate, graduate

WYOMING

University of Wyoming, Laramie
Speech impaired. Summer, undergraduate

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